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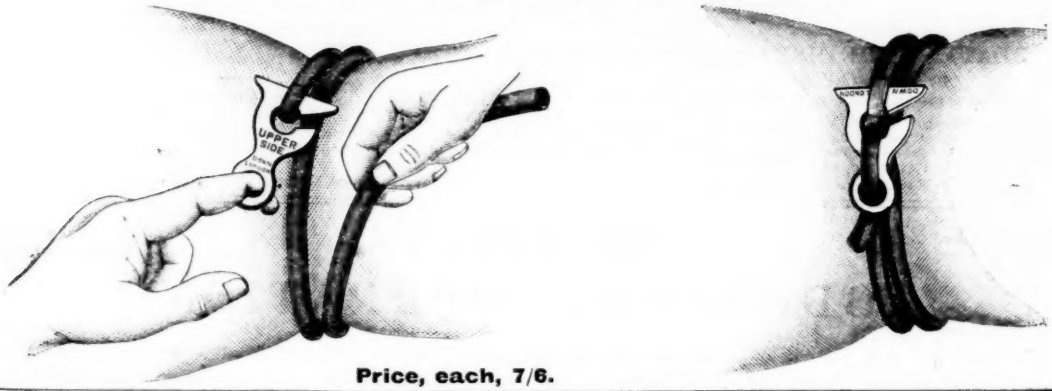

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The Lettsomian Lectures
ON
WAR SURGERY OF THE ABDOMEN.

Delivered before the Medical Society of London

BY CUTHBERT WALLACE, B.S. LOND., F.R.C.S. ENG., C.M.G.,
SURGEON TO ST. THOMAS'S HOSPITAL; CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE.

LECTURE III.[1]

Delivered on March 23rd, 1917.

WOUNDS OF PARTICULAR ORGANS (*continued*).

Large Intestine.

Frequency.—The colon was perforated in 258 cases among 965 operations.

Associated injuries.—The small intestine is the organ most frequently injured with the great gut. The stomach goes with the transverse colon, the spleen and kidney with the splenic flexure, the liver and right kidney with the hepatic flexure. In speaking of side-to-side wounds, we have given some instances of curious injuries, and one may recall here a case where the left kidney and the posterior surface of the ascending colon were the only lesions found.

The injuries of the large intestine are really similar to those of the small gut. The differences that are to be noted are due to its larger size, the absence of coils, the absence of mesentery, and to its proximity, in some portion of its extent, to bone.

1. *The large size of the tube* leads to a preponderance of tears or perforations, but instances are met with in which the whole lumen is completely divided, and this happens both in the fixed portion and in that endowed with the mesentery. This complete division is, I think, due to a collapsed condition of the intestine when it may be, as is well known, but little bigger than the small intestine.

2. *Absence of coils.*—This means that multiple injuries are not common, and when they occur are not so numerous as in the small intestine. The multiple injuries are found at the bends. In one case which may be mentioned there were six perforations—two in the ascending, two in the hepatic flexure, and two in the transverse colon. In another case there were three wounds in the cæcum and ascending colon and two in the hepatic flexure.

3. *The absence of the mesentery* over a great part of its course means a frequent occurrence of retroperitoneal wounds. These are difficult to find and are largely responsible for the heavy mortality. The partially covered portion of the small intestine – namely, the duodenum—has likewise a very large mortality.

4. *Proximity to bone.*—This leads to wounds of the cæcum, the two vertical colons, and the pelvic loop by spicules of bone; and, as has been pointed out, these injuries are apt to be overlooked because the perforations in the peritoneum are not conspicuous.

Infarction.—This type of injury is met with in the small intestine, but I think it is rather commoner in the large. The cæcum with the ileum and the descending and iliac colons have all been found in this state. Interference of the blood-supply also leads apparently to an ulceration of the mucous membrane, which comes on fairly quickly after receipt of the wound. Captain Dunn has collected several cases of this type of injury which he will publish in due course.

Escape of contents.—The large intestine is often laden, but the condition of the contents renders massive escape less frequent than it would otherwise be; but, take it all in all, the escape from the large intestine is more frequent than that from the small, especially when the cæcum and ascending colon are involved.

Nature of the lesions.—Cæcum.—There have been a fair number of cæcal wounds; most of them have been small in extent and have lent themselves to suture. In other cases the wounds have been so big as to necessitate an artificial anus. In one case there was bruising of a transposed cæcum. In a good many cases there was a large retroperitoneal hæmorrhage; and it may be here recalled that this injury was in one instance accompanied by acute dilatation of stomach.

Transrerse colon.—All kinds of wounds are met with here, from a simple single lesion to complete division. True antero-posterior wounds are not very common, and as a rule the transverse colon is struck obliquely, the bullet passing through the anterior part of the lumen. It has already been stated that such wounds are accompanied by lesions of the stomach and small intestine.

The posterior surface is sometimes wounded, and this may be overlooked unless it is borne in mind that such an injury is possible, for it is not obvious unless a special search is made. Bleeding from the vessels supplying the bowel is fairly frequent.

Vertical colons—i.e., the ascending and descending colon.—It is convenient to take these two portions together, as they have no mesentery. Both, especially the descending, lie rather further from the lateral line than would appear. The wound may be completely intra- or extra-peritoneal, or both combined. The actual lesions are perforations, slits, tears, or complete divisions. Perforations are most commonly met with in side-to-side wounds and complete division in antero-posterior wounds. All varieties are complicated with small gut injuries. Makins noticed that ascending colon wounds were more common at the base than other colon wounds, and he attributed the rarity of the descending colon wound compared with that of the ascending to the former being more often accompanied by small-gut injuries owing to the fact that the small gut overlies it. This partially explains the discrepancy, but the ascending colon is actually wounded more often than the descending. The possible explanation may be that the descending colon lies so far back that any bullet passing transversely and involving it and the small intestine would traverse a transverse plane situated so far back in the body as to involve the spine and great vessels. Of course, an antero-posterior wound would involve both the small and large intestine here, but these are not so common as the side wounds. The anterior wounds of the vertical colons are comparatively easy to find and to deal with if a suitable incision is used. The extraperitoneal are very difficult, and most probably are more often missed than any other. They may be small and valvular, and escape notice because they lie in a mass of areolar tissue, and this difficulty is very greatly increased when this tissue is infiltrated with blood, as it so often is. The great danger is an infection of the areolar tissue, and to this class of infection Fraser has given the apt term "colon septicæmia." I have seen it prove fatal within 12 hours, and that with an open wound.

Hepatic flexure.—Next to the transverse colon, the hepatic flexure is the easiest of all to deal with, as it lies fairly superficially. Its form leads to multiple injuries.

Splenic flexure.—This, from its position, is the hardest of all the large intestines to deal with, and even with the best placed incision it is difficult properly to examine without mobilisation.

Pelvic colon.—This portion of the large intestine is anatomically more like the small intestine than any other part of the colon and the lesions are somewhat similar. There are slits, perforations, or complete division, and these are often complicated with multiple small-gut and bladder injuries. Fracture of the pelvis, so often associated, increases the gravity of the case. I have been struck with the great variations in position as shown by the different situations of the wounds of the gut in different cases in which the bullet has taken a similar direction. The infectivity of its contents is very great, and an insignificant wound, even if got early, has proved fatal.

Symptoms.—The symptoms of intraperitoneal wounds are similar to those of the small intestine. A great difference lies in the behaviour of the extraperitoneal wounds; all grades of infection are met with. Sometimes we have cases of acute sepsis with or without gas formation which are fatal in a few hours; such cases are often past help when they arrive. They are cold, blanched and clammy, and the pulse running—in fact, their appearance often suggests acute hæmorrhage. The dangerous sepsis, shown by high mortality, accompanying artificial ani when formed in the vertical colons has led some operators to always make an attempt to close the wound. Unfortunately the damage is often already done when the case has come under treatment. In other cases, especially in antero-posterior wounds, or cases with a single wound in the loin, the symptoms are less acute. Some such cases arriving late and left may do well at first; then the usual signs of intoxication and local tenderness appear. In such cases an incision opening up the wound causes an

[1] Lectures I. and II. were published in THE LANCET, April 14th and 21st, 1917, respectively.

amelioration; a certain number of such cases appear not to be cases of colon infection but due to infected material carried in with the projectile.

Prognosis.—Figures seem to show that there is no great difference between the small gut and the large gut in the operated series of cases, though one must remember that in unoperated cases the small intestine is much more fatal, and one can say that small gut injuries are largely fatal from hæmorrhage and shock, while the great gut injuries are fatal from sepsis, especially retroperitoneal sepsis. This difference, of course, is due to the greater toxicity in the large intestine, which is known to all. It is possible that operative treatment may cause the death in a certain number of colon wounds which might have got well under the old conditions, but with the increased use of a transverse incision for the exploration of such wounds the dangers ought to be greatly reduced.

It is interesting to compare two series of figures. In 310 cases of penetrating wounds of the abdomen under operative treatment at the front the small gut mortality was 63·8, that of the great gut 60.

Makins's figures, which refer to cases at the base in the pre-operative days, show the mortality to have been as follows: Large gut mortality 38·7, small gut mortality 86 per cent. One must remember here, of course, that there was a great elimination of both classes of case.

Very few cases, apparently, of transverse colon wounds used formerly to reach the base, and this was attributed to its position favouring the spread of sepsis, but I am inclined to think that it was not so much this as to its frequent association with small gut injuries. The reason for the vertical colon cases reaching the base seems to have been an anatomical one, for those colons are tucked away at the side of the body and their situation is very favourable for sealing off a local infective area.

I have not been able to trace, so far, any great disparity as regards danger in the different portions of the large intestine.

Treatment.—In spite of the fact that some colon cases did arrive at the base and recover, I do not think that there are any surgeons who have had experience at operating who would advise abstention on this ground except in cases which arrive late.

Incision.—It may still be necessary to use a paramedian incision for a general exploration of the abdomen for the exclusion of, or for dealing with, other injuries. The transverse and pelvic colons are best dealt with from such an incision, as these lesions are commonly associated with those of the small gut. It may be necessary in certain cases to supplement this median incision with one towards the side of the body. When the projectile has traversed only one side of the body the horizontal loin incision is by far the best, and here again the value of an X ray examination in cases of single entry wounds is to be insisted on. The rectus sheath may be preferred by some for exploration of the hepatic and splenic flexures, but the association of kidney injuries with these wounds makes a horizontal incision more desirable, as the kidney can be dealt with in the posterior extremity of the wound, whereas an attempt to remove the kidney through the anterior incision is not very convenient or desirable. Open wounds involving the loin, and possibly involving the colons, can be dealt with by local enlargement, but in the absence of X rays a median incision to exclude other injuries is most probably desirable.

The local lesion.—The question of treatment is determined by the nature of the lesion. Suture should be attempted whenever possible, but a colostomy is often necessary to save time when other lesions have already been dealt with. If suture is employed in the uncovered parts of the colon adequate drainage must be established.

Proximal colostomy.—I thought when starting work that proximal colostomies would have a much wider application than I have found to be the case. They are, of course, useful in limiting the amount of septic absorption in cases of large wounds of the vertical colons, but, as has been pointed out, this tissue is already infected at the time the case has come under treatment; and, in addition, one does not feel inclined to make an extra opening in the bowel, and proximal colostomy to be of any use must be complete and must probably find its best application in these cases of loin wounds on the left side in which sepsis develops late, and in some wounds of the rectum. A cæcostomy is a perfectly useless procedure.

Rectal Wounds.

These may be either extra- or intra-peritoneal or both.

(*a*) The extraperitoneal ones are often accompanied by wounds of the buttock and fractures of the sacrum. The latter are especially dangerous, as sepsis spreads rapidly in the retro-rectal areolar tissue. The treatment is a free external opening and possibly a proximal colostomy.

(*b*) Intraperitoneal wounds are best treated by suture. In those cases where this is impossible it may be worth while closing the bottom of Douglas's pouch above the lesion and introduce a tube through the anus into the space thus shut off. The question of a proximal colostomy must also be considered.

Liver.

Frequency.—Out of 965 cases the liver was wounded 163 times. Liver wounds furnish a large proportion of the cases in which no operation was performed.

Organs wounded with it.—The stomach, colon, small intestine, and right kidney are those usually wounded with the liver. The pleuræ are often involved. The liver is often found wounded in cases of an exploratory cœliotomy where the entrance wound is far away. Many cases where the liver is obviously wounded are only submitted to operation to exclude the wounds of other organs.

Nature of injuries.—A good many cases of rupture by horse kicks have been seen, but most of the wounds are caused by projectiles or by ribs driven in by the missile. Makins says that transverse wounds were the most common at the base. The wounds are of all types, a simple perforation, an avulsion of fragments, especially of the anterior edge, to an almost complete disruption.

The wounds are usually commensurate to the size of the projectile: thus bullets, small shell and bomb fragments make perforations or scores; larger shell fragments more ragged wounds. Its friable nature, as would be supposed, lends itself to tearing and fragmentation; thus there may be radiating fissures from a central hole, crater-like exits, or pieces nearly or completely torn off. In some cases a bullet produces extensive destruction. These are said to be caused by short-range wounds, but of this I am not convinced. The track or torn surface is at first ragged and bloody; seen after 12 or 24 hours it becomes a dirty yellow brown, and later it may be a vivid yellow colour due to bilious staining. The injury, to judge from the microscopic sections, is usually limited to the vicinity of the wound, and in those cases where destruction of cells is found at some distance from the wound it is most probably due to an infarction phenomenon. Anyhow these infarcted areas are by no means uncommon.

Hæmorrhage varies; it is not altogether commensurate to the size of the injury and its amount largely depends on whether a big vein has been opened or not—if not, bleeding usually ceases spontaneously in from six to ten hours. The gall-bladder, common and cystic ducts have all been wounded, but the larger bile passages do not seem to be so often wounded as one might expect. Sometimes in the abdomino-thoracic wounds the bile escapes into the pleura.

Symptoms.—The symptoms are often slight and one has no doubt in deciding that the right course is the "expectant" one. Sometimes the symptoms seem surprisingly severe, and I can recall two cases of tangential wounds of the liver which could not have involved the liver deeply and in which there was no sign of blood in the abdomen. Both cases were extremely shocked and one ended fatally; unfortunately there was no post-mortem. There are the usual signs of abdominal injury, the main ones being those of hæmorrhage which manifested itself in the usual way.

Jaundice.—Jaundice of a slight and evanescent character, accompanied by bile in the urine in some cases, is seen in the early stages; it is of no great importance and usually passes off; its cause is not known. The septic form of jaundice which is seen at the base in a considerable number of cases, and which not infrequently ends fatally, is also seen at the front within three or four days of the receipt of the wound. There has also been one case of severe biliary peritonitis which ended fatally 36 hours after receipt of the wound. There was much bile in the peritoneum, and no other injury to account for the peritonitis. Of course, it is impossible to deny that infection may have been carried in with the projectile. I quote this case because there is considerable difference of opinion as to whether bile can cause peritonitis. In the pleura, apparently, it is often quite innocuous.

For the late facts of liver wounds I cannot do better than refer you to Sir George Makins's paper on this subject which appeared in the *British Journal of Surgery* (No. 12, iii., 1916).

Prognosis.—This may be said to be good. Thus we have 114 cases and 38 deaths. Shock and hæmorrhage are the common causes of death. In uninfected wounds mortality has a distinct relation to the amount of injury, both on account of the amount of blood lost and of the amount of injured substance. No connexion has been traced between the direction of the projectile and the fatality. Injuries of the big bile passages do not seem to increase the gravity to any appreciable extent. Attention has already been drawn to the grave symptoms of apparently trivial injuries.

Treatment.—Many cases require no operation, as there are obviously no other organs wounded. Many cases are operated on because of the possibility of injury to other organs and the bleeding in the liver wound found to have ceased.

The incision for an obvious liver wound is either an "*f*" shaped rectus incision or a sub-costal. A French surgery recently brought out recommends an incision parallel to the costal margin which passes through the costal cartilages. Access to the dome of the liver is said to be greatly facilitated by this method. The actual treatment of the wound when found consists in leaving it alone, packing it, or suturing. The latter is not very satisfactory. The big bile-passages can be dealt with on ordinary lines by suture and drainage.

Pancreas.

Frequency.—Very few of such injuries come under review—so few as to suggest that most of them are rapidly fatal. The association of the gland with the big vessels need hardly be mentioned.

Symptoms.—There are no distinctive symptoms, the lesion being found at explorations and accompanied by fat necrosis. The wasting so often seen in civil injuries and the formation of Jordan Lloyd's cysts have not been seen.

Prognosis.—One case was sent to the base in which the pancreas was obviously perforated by a bullet; the other cases were fatal. Makins has published some cases of wounds of this organ which he had seen at the base. He says that they were discovered during the performance of operations for intestinal injuries and that the typical results of the escape of the pancreatic juice have been observed. They have usually proved fatal. He mentions one interesting case in which an abscess formed and opened, in which the patient eventually recovered and was discharged to England. This man walked six miles after receiving his wound and suffered no abdominal pain. He had been retained some time at the casualty clearing station on the suspicion of an injury to the alimentary canal.

Spleen.

Frequency.—Wounded 54 times in 965 abdominal operations.

Associated injuries.—The kidney is most frequently injured with this organ; the splenic flexure is fairly frequently associated with it. The curious absence of combined stomach and spleen wounds has already been noticed. The thorax is often involved, though usually only at its inferior limit.

Nature of injuries.—These consist of perforations, tears, slits, avulsion of the upper and lower poles, and complete disruption. It is often injured by broken ribs, and rupture through an intact diaphragm has been described, the wound being produced in one case by a piece of hard clay.

Symptoms.—These are mainly those of hæmorrhage, and the diagnosis is made on these and on the position of the wound. Very often it is only found wounded in the course of an exploratory operation. There is nothing special about the hæmorrhage, and the damming up of blood in the left loin which has been said to be a feature of this injury in civil practice has not been conspicuous in the present campaign. The amount of hæmorrhage varies very much and depends mainly upon whether the vessels are injured. Unless this is the case, the hæmorrhage has usually ceased when the abdomen is opened.

Prognosis.—This is good unless the other organs are injured, or the main vessels of the organ torn. Experience at the base obtained by post-mortems on cases fatal from other reasons has shown the healing of many spleen injuries. The loss of the organ does not seem to cause any great shock. There must be many cases of soldiers in England without their spleen who offer a good opportunity for confirming the results on the blood produced by loss of this organ. I should be much obliged if any of those who come across such cases could let me have the result of the blood examination.

Treatment.—In uncomplicated wounds a subcostal or a rectus sheath incision with a transverse extension is most suitable. The kidney is very likely to be wounded, and has been removed in several cases with the spleen. If the hæmorrhage has ceased, the organ is best left alone; the suturing or packing will control the hæmorrhage if this is going on. As a matter of fact, sutured holes are apt to bleed almost as much as a raw surface unless the hæmorrhage is fairly free. Excision should only be resorted to if the organ is totally disrupted or the vessels torn.

One point has to be borne in mind in operating on those cases, especially if associated with wounds of the kidney vessels. The hæmorrhage, which very likely has been controlled or diminished by the clotting, is likely to restart in an alarming manner directly the clot is disturbed. It is therefore absolutely necessary to have everything ready for the arrest of the hæmorrhage.

Mortality and causes of death.—Shock and hæmorrhage are the main causes of death. One curious case may be quoted, that of a simple perforation of the spleen that died suddenly without cause on the fifth day.

Kidney.

Frequency.—The kidney was wounded 73 times out of 965 peritoneal operations. I have seen two cases in which both kidneys were injured; both were fatal.

Associated organs.—The spleen, liver, and colon are the organs most frequently associated, and, curiously enough, the spleen and right kidney have been wounded without other injury than perforation of the vertebra, which in this case was unaccompanied by paraplegia. The case was fatal from a late recurring hæmorrhage in the spleen. The right kidney is commonly associated with injuries of the liver and hepatic flexure and the left with injuries of the splenic flexure and spleen.

Nature of lesions.—The nature of the projectile has no particular effect on the injury, and, as is the case with other solid organs, the kidney is liable to extensive rupture. The actual lesions may be perforations, scores, furrows, avulsion of poles, and hemisection; sometimes the kidney is found lying loose, the pedicle having been ruptured. Sometimes the pelvis is alone perforated; sometimes the vessels are completely divided, the ureter remaining intact. The amount of hæmorrhage depends largely upon whether a vessel has been injured or not; there is very often considerable perinephric hæmatoma. In contra-distinction to civil injuries intraperitoneal hæmorrhage is very frequent.

Symptoms.—The shock is not, as a rule, very great and depends largely on the amount of blood lost; and this, perhaps, is peculiar when one remembers the effect produced by the kidney blow in boxing. The dullness due to free fluid in the abdomen is more common than in civil injuries and manifests itself in the right or left side according to the organ injured. *Hæmaturia* is usually present, but it may not occur at once. The absence of this sign is due either to suppression, to the presence of clots or to pieces of kidney in the ureter. Profuse hæmorrhage into the bladder is not common in the early stages. Hæmaturia usually clears up in a few days, but may persist. *Extravasation of urine* is not marked unless the pelvis has alone been injured.

Secondary complications.—A secondary hæmorrhage is a fairly frequent late complication, and occurs apparently most frequently during the second and third week after injury. The urine is generally contaminated. Sometimes the secondary hæmorrhage starts afresh, or it may manifest itself as an exacerbation of a persistent primary hæmorrhage. Unlike primary hæmorrhage, it is often accompanied with clotting of the blood in the bladder. Gas infection of an effusion of blood round the organ has been met with.

Treatment.—Many cases require no operative treatment. Sometimes it is advisable to open up the loin wound. Many cases of kidney injury are found after an exploratory cœliotomy complicating other visceral injuries. If the kidney is found to be not much damaged all that is necessary is a puncture drained into the loin; if much damaged nephrectomy may be necessary.

As was stated in talking of splenic injuries, the hæmorrhage from wounded kidney vessels is very liable to restart with alarming rapidity directly the clots are disturbed; and it is rather interesting here to mention that the number of

kidney wounds treated seems to be larger at an advanced operating centre than in the casualty clearing station. This is most probably due to the fact that the cases arriving earlier have not suffered so much from hæmorrhage. The treatment of secondary hæmorrhage is ablation of the organ, care being taken at the same time that the bladder is empty of clots.

Mortality and causes of death.—Shock and hæmorrhage are by far the most common at the front.

Ureter.

This is not very frequently injured, and the cases that we have had have done well. There are no particular symptoms and the injuries are found during explorations. Treatment follows civil lines.

Bladder.

My own opinion has undergone a change, and I now think that these injuries are more dangerous than I did after a few months' experience at the front, and I believe that the danger is an inherent one and apart from the complications to other injured organs. The bladder was wounded 45 times in 965 operated cases. In 25 cases it was the only organ injured.

Associated injuries.—The small intestine and fractured pelvis.

Nature of injuries.—They may be either intra- or extra-peritoneal, or both. The intraperitoneal lesions—perforations, tears, or slits—are very often not extensive. The extraperitoneal wounds, often accompanied by much hæmatoma, are slits or tears. They are usually situated at the sides of the bladder and may be often caused by bony spicules. The intra- and extra-peritoneal are usually caused by oblique wounds entering by the lower lateral part of the bladder and passing out through the peritoneal surface. Projectiles sometimes lodge within the bladder and cause pain at a later period.

Treatment.—Intraperitoneal wounds are, as a rule, easily sutured, except those which occur at the very bottom of Douglas's pouch. The bladder should be explored for a foreign body. A suprapubic drainage is not here necessary. Catheterisation for a few days may be necessary or a catheter may be tied in, although this treatment is not to be continued for long.

Extraperitoneal wounds.—These are treated by an incision down to the wound in the bladder, which latter may be sutured, if possible, and a drain left in the space formed by the operation. If the wound in the bladder cannot be sutured it is most probable that a drain down to the wound will be sufficient; if there is any doubt a tube placed in the organ is most probably the safest course.

Colonel A. Fullerton, who has had much experience of these cases at the base, does not think that a suprapubic cystostomy is necessary in extraperitoneal wounds, as he has often seen cases at the bases do well discharging urine through the various fistula tracks caused by the projectile's entrance through the buttocks or upper thigh. He states, and justly, that urine is an aseptic fluid, and therefore need not be feared. It is quite true that many such wounds may reach the base, but at the front one sees cases wounded extraperitoneally do badly and show signs of septic intoxication; and when one has seen such cases do badly one does not feel inclined to hold one's hand.

Mortality and causes of death.—Uncomplicated cases have a mortality of 56 per cent. The causes of death are shock and hæmorrhage associated with fractured pelvis and, a few days later, sepsis.

Protrusion of Omentum and Viscera.

By this is meant, not the exposure of the abdominal contents through a large gap in the abdominal wall, but their prolapse through a wound very often comparatively small.

The omentum.—As would be expected, the omentum is most frequently seen in this connexion. It appears in larger or smaller amounts in wounds situated all over the abdomen and also in those situated in both hypochondriac regions, where it reaches the outside of the body through the interspaces or through broken ribs where one hardly would expect to see it appear. The method of extrusion is two-fold: it is either (1) carried out by the projectile, or (2) is driven out by the intra-abdominal pressure either through the entrance or exit wounds.

In one case where a shell fragment had entered above the umbilicus in the mid-line and had come out in the right loin behind the lateral line of the body, the omentum was so firmly carried into the long oblique exit wound that it required considerable force to release it; it was, in fact, strangulated within the abdominal wall, though none of it showed externally.

Before operation became the rule it was usual to leave these tags to slough off, and probably this is still the best course to pursue if the cases are seen late. If seen early it is best to treat such cases as other abdominal wounds and explore. In several instances in which this had been done the intestine has been found wounded.

The stomach.—This has been found herniated by itself or in association with the spleen, splenic flexure, and small intestine. In one case it was successfully sutured and replaced, though too much of the abdominal wall had been carried away to allow the external openings to be closed.

Liver.—This organ has also been partly herniated.

Small intestine.—Next to the omentum the small gut is most frequently herniated; and here again, as in the case of the omentum, it may be carried out or expelled. Sometimes a knuckle lying outside has been actually wounded, in other cases the extruded knuckle has been intact, but there have been numerous lesions within the abdomen.

If seen early the ordinary rules apply, and the abdomen should be opened and the lesions repaired; if seen later—over 24 hours—it is not probable that anything can be done, but still it is better perhaps to explore if the condition of the patient justifies it.

Colon.—The transverse colon has been herniated. In one case the gut was tightly herniated in the wound and, as the injury was two days old, the constriction was relieved and an artificial anus established.

ANÆSTHETICS FOR MEN WITH WOUNDS OF THE ABDOMEN, BY CAPTAIN GEOFFREY MARSHALL, R.A.M.C.

A patient with a penetrating wound of the abdomen usually shows signs of shock. In a typical case the face is pale, the extremities cold, the pulse rapid, and the blood pressure below normal. If put to bed and surrounded with hot bottles the man's general condition will improve. Both surface temperature and blood pressure rise. It is important that heat-loss should be prevented during the course of operation.

The choice of anæsthetic.—Men who have been wounded less than 40 hours previously are not good subjects for spinal anæsthesia. Intrathecal injection of stovaine is followed by a great fall of blood pressure, which may be fatal. Men with wounds of the abdomen appear to be no exception to this rule. The writer's experience of spinal anæsthesia for these cases has been limited and unfortunate. Three patients were each given 0·07 gm. stovaine. They all died within a few hours of operation. Chloroform is an unsuitable anæsthetic. The blood pressure falls steadily during the course of the administration. If the operation is prolonged the patient may die before the abdomen is closed or during the next few hours.

Ether remains the drug most generally used. Good results have been obtained with open ether. Its chief disadvantages are: 1. The loss of body-heat caused by the prolonged inhalation of cold vapour. This is especially noticeable in the theatres of clearing stations which are commonly lodged in tents or temporary buildings difficult to keep really hot. 2. Irritation of the respiratory tract. This is most serious in winter, when many of the wounded have some bronchitis before operation. Men wounded in the abdomen are particularly liable to develop bronchitis. This may be due to deficient movement of the lower chest. At this clearing station the proportion of cases which had bronchitis after operation was 54 per cent. when open ether was used. With warm ether vapour the percentage dropped to 14·7. These figures were obtained from two comparable series of cases occurring in the same months of two successive years.

Ether should not be given by the intravenous method to men suffering from shock. In these cases profound collapse may occur within two hours of administration.

In our experience the most satisfactory way of administering ether or chloroform is by the Shipway apparatus.[2] The patient inhales a warmed mixture of air and anæsthetic vapour. Induction is quiet and rapid. The absence of struggling may save much bleeding from wounded vessels. Breathing is easy and noiseless. There is a remarkable absence of secretion. The patient recovers consciousness

[2] THE LANCET, 1916, i., 70.

quickly and vomiting is rare. It is usually possible to give fluids by mouth within two hours of operation. In lengthy operations it is an advantage to pass oxygen instead of air through the ether.

When the projectile has penetrated the chest as well as the abdomen ether should not be used. It is apt to provoke fatal intrathoracic hæmorrhage. In these cases we have found the most successful sequence to be a preliminary injection of hyoscine 1/100 gr., morphia 1/6 gr., and atropine 1/100 gr. This is followed by a minimal amount of warm chloroform vapour and oxygen.

It is not necessary to give atropine before a warm ether vapour anæsthetic. We have not found any advantage in doing so. In the majority of cases morphia should be withheld before operation, or given only in small doses. A man recently injured is particularly susceptible to further shock. This susceptibility is greatly increased by large doses of morphia.

Factors causing fall of blood pressure during abdominal operations.—During the course of an ether anæsthetic the blood pressure shows a tendency to rise. If there is much manipulation of gut and peritoneum, it will fall gradually. The process, however, may be continued for hours without the blood pressure falling to dangerous levels. Exposure of gut outside the abdominal cavity produces a much more serious effect. If more than two or three feet of gut are exposed the blood pressure will commence to fall after a few minutes. It will continue falling rapidly until the gut is replaced. This effect is seen when great omentum only is exposed. Surgeons should be urged to make big incisions, and work as much as possible with the gut lying inside the peritoneal cavity.

Apart from copious hæmorrhage, there is one other procedure which causes rapid fall of blood pressure. This is turning the patient on his side. The effect is only produced if the patient has been under the anæsthetic for a considerable time before being turned. At the end of an abdominal operation the patient may be in good condition. He is then turned on the right or left side so that the surgeon may excise a wound in the back. In a few minutes there is a great fall of blood pressure and the radial pulse disappears. It may be hours before the patient recovers this lost ground.

The indication is that wounds of the back should be dealt with before laparotomy. Turning the patient has no ill-effect in the first half hour of an ether anæsthesia.

CAUSES OF FAILURE.

It has been sufficiently indicated that the chief causes of failure are hæmorrhage, shock, and sepsis. Hæmorrhage and shock are the early causes, sepsis are later. The latter is of two kinds: (*a*) Peritonitis as the result of soiling the peritoneum with intestinal contents or that carried in by the missile; (*b*) the sepsis which occurs in colon wounds on the uncovered portion of the bowel. To these causes must be added two more.

Mental and physical strain.—It is commonly said that the surgeon in war has the advantage over his peace colleagues in that his subjects are healthy young adults. This, of course, is true, but still there is the strain caused by days of watching and alertness and of nights when sleep is difficult, interrupted, or impossible to obtain. Just before an action very likely both artillery and trench mortar bombardment increase to their maximum. Then there is the exertion of battle coming on the top of days of constant strain. The excitement of battle, for the time being at any rate, obliterates all sense of fatigue, so that many men do not know how tired they are until some wound is received which prevents them going farther. Then there is the journey, which we have already described, to the casualty clearing station. Sometimes the men arrive practically asleep and resent any interference or examination. Other men arrive in whom a state of excitement is still present, and they are willing and anxious to chatter about their experiences. Then, after being fed they are dressed, and if they do not fall asleep in the process, they do so immediately afterwards; and it is one of the most striking sides of the medical side of war to see a large room filled with men lying on stretchers—some slightly wounded, some severely, some mortally, but all asleep and asking for nothing but sleep. They are worn out body and soul. It is on such patients that the surgeon has to work, and it may well be imagined how much the mental and physical strain increases the shock of the injury.

Complicating injuries.—One need say very little on this subject except that every kind of bodily injury may be added to that of the abdomen. Compound depressed fracture of skull, fractured long bones, multiple wounds, fractured spine, and avulsed limbs are among such complicating injuries, and when one considers the total mortality and in appraising the worth of abdominal surgery one must take these injuries into account; it may be said that were it not for such extraneous injuries the mortality would be considerably lower. No attempt has been made in the operative table to show such injuries.

THE FUTURE.

It cannot be denied that the measure of success that has been obtained in abdominal surgery, and for the matter of that in other wounds, is principally due to the fixity of the battle-line. Can the high standard be kept up if the armies get on the move? The answer is doubtful. It largely depends on whether it will prove possible to render the casualty clearing station sufficiently mobile to prevent a large gap recurring between it and the field ambulance. We shall never be in the same condition as we were in Africa, as the motor ambulances have largely minimised distance, but the motors will never be able so to eliminate space as to make a casualty clearing station far back as useful as one well up.

The two most importance functions of a clearing station are: (1) To warm and feed men; (2) to operate upon them under reasonably favourable conditions. The cook-house and the theatre supply these conditions. Nursing and after-care are important, but it is better to operate on an abdomen and let a man lie on a stretcher than not to operate on him because beds and nurses are absent.

Shall we return to the expectant treatment if the war changes its character? I am inclined to think not. People have learnt that the abdomen is not such a fearful place, and that good results can be obtained without the elaborate surroundings that were formerly thought necessary. The peritoneum has ceased to be the bogey that it was.

RESULTS.

The table published with this lecture tells what has been accomplished. I would only add that every attempt has made to find out what could be done by surgery for the abdominally wounded. The mortality has been reduced at the front by some 10 per cent., and many fewer cases now die at the base. The period covered by these figures extends over 18 months, so that a fair average has been struck. The 18 months were mostly what is euphemistically called a quiet time, but included one period of strenuous fighting. It is interesting to note that the mortality over a period of 18 months is the same as that for the first six months of that time, which fact seems to show that the figures represent a true picture of what may be expected from operative treatment.

The main results may be summarised as follows:—

Total number of cases ...	1288	No operation considered advisable	73
Arrived moribund	250	Total operations	965
Total mortality, excluding moribund	50%	Total operative mortality	54%
Total mortality, including moribund	60%	Total hollow viscera mortality	65%
Considered with view to operation	1038	*Stomach mortality	53%
		*Small gut mortality	66%
		*Great gut mortality	59%

* Uncomplicated by wound of any other hollow alimentary viscus.

Table of Operations.

Operation.	To base.	Died	Operation.	To base.	Died
Suture of stomach ...	26	29	Proximal colostomy ...	4	10
Suture of stomach and other operations on intestinal tract	6	21	Cœliotomy, no hollow viscus perforated ...	89	33
Resection of small gut	26	89	Cœliotomy, liver wounded	76	38
Resection of small gut and other operation on intestinal tract ...	5	34	Kidney, exploration of	25	7
Suture of small gut ...	59	71	Kidney, excision of ...	6	7
Suture of small gut and other operations on intestinal tract ...	17	33	For wounded bladder	11	14
Small gut anus	—	7	Spleen, exploration of	12	4
For small gut fistula...	2	1	Spleen, excision of ...	4	12
Suture of great gut ...	50	52	Miscellaneous	10	21
Great gut anus	13	36	No operation advised	69	4
For wounded rectum	3	5	No operation, moribund	—	250
			Grand total	513	775

NOTE.—In the case of injury to hollow viscera there were wounds of the solid viscera which are not shown. Thus in the case of "suture of stomach," of 29 fatal cases 11 were complicated by wounds of the solid viscera.

ABDOMINAL SURGERY AT AN "ADVANCED OPERATING CENTRE."

BY GERALD S. HUGHES, M.B. LOND., F.R.C.S. ENG.,
CAPTAIN, R.A.M.C. (T.F.); SURGEON, YORK COUNTY HOSPITAL;
AND
W. A. REES, M.D. LOND., F.R.C.S. ENG.,
CAPTAIN, R.A.M.C. (T.C.).

OUT of the 640 cases of severe injuries to the abdomen, head, or chest, received at this advanced operating station in six months 263 of them were wounds of the abdomen. Several records of abdominal work at the front have been published, but so important is this branch of surgery, and so different in many respects from abdominal work at home, that it is important that the experiences of those doing this work should be recorded.

The hospital is stationed close up to the line and is thoroughly equipped for dealing with urgent surgical work. The wounded are nursed by sisters with a staff of orderlies, and the permanent officers are a surgical specialist, an assistant, and an anæsthetist, constituting "a team." The time elapsing between the receiving of the wound and the admission to hospital depends on the time taken in getting the patient back to the advanced dressing station, from which he is sent direct to us. It is generally longer during an attack than in times of quiet.

As soon as the patients arrive they are taken to a receiving ward and placed in beds always kept ready warmed, where they are examined, the findings noted down, and the position of the wounds marked on diagram. These notes are subsequently transcribed into the Special Abdominal Book issued by the Committee of the Medical History of the War, and have added to them later the notes received from the base and from the home hospitals. Thus a complete history of the case is kept from the receipt of the wound until the time the man is finally discharged.

The patients remain in the receiving ward until they are taken to the theatre for operation, or, in those cases where an operation is definitely contra-indicated, to the wards. It is an important point in a hospital at the front not to send abdominal cases into the general ward for observation, as if this is done in a rush there is a danger of these cases being overlooked, and for the same reason patients in a seemingly moribund condition are not removed from the receiving ward, so that if their condition at any time improves they can immediately be sent to the theatre.

Question as to whether the Wound is Penetrating.

In dealing with abdominal cases the first question to be decided is whether the wound is penetrating or non-penetrating—that is to say, whether the missile has entered the peritoneal cavity causing visceral injury, or whether it is a "contour wound" involving only the abdominal wall. To help one to decide this question and in examining every patient with an abdominal wound the following points must be considered:—

1. *Facies.* This sign does not possess the same value as it does in abdominal conditions met with in civil practice. Most of the men brought in with severe wounds wear an anxious and worried mien.

2. *Pain.* This is always present in wounds of the gut. It is also present in retroperitoneal hæmorrhage with its consequent stripping off of the peritoneum from the tissues; it is especially severe when it takes place on the posterior surface of the abdomen; of course, pain is very much modified by the amount of morphia that has been given.

3. *The pulse* is small in volume but varies greatly in frequency and may be comparatively slow. In the series of 110 cases on which laparotomy was performed it was under 100 in 64. Any irregularity of the pulse is a bad sign.

It is very noticeable at the front how small, owing to the contraction of the arteries, the pulse may be in limbs which have been exposed to the cold. One patient who was admitted with a mere superficial wound had an almost imperceptible pulse at the wrist, whereas the pulse in more protected parts of the body (e.g., dorsalis pedis) was quite good in both volume and tension. The arms had been exposed outside the blanket on a cold day during the journey to the hospital.

4. *Vomiting*, if present, is a sign of peritoneal irritation. In cases of stomach wounds it nearly always occurs, with or without hæmorrhage. Its importance is modified by the fact that a large number of those who are wounded in other parts of the body are liable to be sick.

5. *Abdominal rigidity* is widespread and continuous in cases of injury to the hollow viscera. It is not so marked in cases of excessive hæmorrhage, and it tends to pass off in the last stages just preceding death. Abdominal rigidity also occurs in wounds of the lower chest, but in these cases, if the hand is laid on the abdominal wall, the muscles will be found occasionally to relax and an incomplete respiration taken. More localised rigidity is produced by a contour wound or hæmorrhage associated with it. Rigidity that is due to a chest wound is found to relax if the patient's shoulders be well raised and a pillow be placed under the knees.

6. *Tenderness* is perhaps the most important sign of penetration of the abdominal cavity with injury to the gut. It is not usually limited to the area of the wounded gut, but is more generalised. It is not so marked in cases of injury to the solid viscera.

7. *Hæmorrhage.*—In most penetrating wounds one gets some internal hæmorrhage, which shows itself by dullness in the flanks and hypochondrium. In very rare cases hæmorrhage may be present in the peritoneal cavity without any breach of the peritoneal surface.

8. *Liver dullness.*—The presence or absence of liver dullness cannot be relied on. It has often been noticed to be absent in cases where there has been no injury to gut, and free air in the peritoneal cavity is scarcely ever met with even in wounds of the stomach. At an operation the stomach may be seen distended with gas which has not escaped, though there is a penetrating wound in its wall. It is interesting to note that liver dullness is often absent in moribund cases. Out of a series of nine such cases seen in sequence the liver dullness was absent in seven. The explanation of this probably is (*a*) that shrinkage of the liver has occurred from excessive bleeding. A small contracted liver is almost invariably met with in operating on cases where there has been much bleeding into the peritoneum. (*b*) That there is a paralytic distension of the gut.

9. *Position of wound of entry.*—It should be noted that nearly all of our cases were examples of wounds by bombs and shells, many of which necessarily burst upon the ground and just as frequently behind or beside the patient as in front of him. This is probably the explanation of the fact that a considerable majority of our patients were wounded behind a line drawn from the anterior fold of the axilla to the anterior superior iliac spine. In no less than 23 out of the series of laparotomies and also in several of those who were admitted in a moribund condition, the missile had penetrated through the buttock, and therefore when wounds are received in this region the possibility of the foreign body having entered the abdomen must never be overlooked. In wounds of the back, with damage of the structures lying beneath the peritoneum, symptoms are often produced which simulate those found in penetration of the abdomen. This is exemplified by the following case:—

Private B. was admitted on Nov. 13th with a wound to the outer side of the left erector spinæ muscle and the second lumbar vertebra. On examination of his belly it was found that he had dullness, pain and tenderness on the left side of the abdomen. He was rigid, but the rigidity was confined to the left half, and it was mainly this latter fact which made us conclude there was no penetration of the abdominal cavity, but that it was a case of retroperitoneal hæmorrhage.

A second case exemplifying the same association of symptoms was the following:—

Private H. admitted Oct. 16th, 1916, complained of great pain in the right half of the abdomen; he was very tender in this region, and had some dullness over the lower abdomen. The wound of entrance was on the inner side of the left gluteal fold and these signs and symptoms were produced by the missile having passed upwards and forwards into the right abdominal wall and having caused a large extra-peritoneal hæmorrhage with bleeding from the deep epigastric artery. In this case so closely did the signs and symptoms simulate those of a penetrated gut that exploratory laparotomy was performed. Enough importance had not been attached to the fact that the rigidity was confined to the right side of the abdomen. It has been pointed out above that the rigidity is almost always general in wounds of the gut.

When the wound is received higher up, at or near the costal margin, the case may be complicated by damage to the pleural cavity or liver. These cases will be considered at a later period.

The size of the wound of entry may be some indication of the damage received internally, and a useful working rule is this: A large wound with few abdominal symptoms suggests the probability of little or no damage internally; whereas a small wound with well-defined abdominal symptoms is a clear indication of a lesion of the abdominal contents. In doubtful cases exploration under an anæsthetic may be

necessary, the direction and depth of the wounds can then be ascertained and an exploratory laparotomy incision be made. In our experience the question of penetration of the abdominal cavity was only in doubt in 1 per cent. of the total cases.

Choice of Cases for Operation.

No hard-and-fast rule can be laid down in hours as to when a case passes from the operable to the inoperable stage. When cases arrive within 24 hours of being wounded, so long as they are not moribund, they are all operated on. If cases arrive later than 24 hours more careful discrimination is necessary. If both wounds are in the region of the flanks, and the probabilities are that the lumbar colon only is opened, they may sometimes be left, and after a few days a fæcal fistula develops and they do well. We had three such cases and these all had an exit wound, so that the course of the missile was known. If they arrive with wounds involving the abdomen, loin, or buttock, with obvious penetration, and they are not moribund, it is best to operate at once, as the fact that they have survived 24 hours shows that they may not have very serious injuries. If left they will almost certainly die.

The following is an analysis of the time that elapsed between the receipt of the wound and the operation, and shows how important early operation is:—

1. Cases operated on between 1 to 6 hours after wounding —43. Recovered, 27 = 62·8 per cent. Died, 16 = 37·2 per cent.

Eight of the fatal cases had such severe injuries that recovery was practically hopeless and they would not have survived to reach the operating theatre had they been brought in later.

2. Cases operated on between 6 to 12 hours after wounding —33. Recovered, 12 = 36·3 per cent. Died, 21 = 63·7 per cent.

3. Cases operated on between 12 to 16 hours after wounding—18. Recovered, 3 = 16·6 per cent. Died, 15 = 83·4 per cent.

4. Cases operated on over 24 hours after being wounded—11. Recovered, 5 = 45·4 per cent. Died, 6 = 54·6 per cent.

Recoveries at 48, 36, 33½, 32, and 30 hours respectively. Deaths at 60, 36, 32, 30, 29, and 28 hours.

In the fourth class bowel injury was present in every case except one at 48 hours, and in this case the omentum was herniated through the skin and several coils of bowel through the muscles under the skin. It is interesting to note in this connexion that peritonitis in itself does not mean a bad prognosis, as it is found that where the peritoneum shows an early and marked reaction the cases often do well.

It has sometimes been suggested that operations should be postponed in order to allow shock to pass off, and we should strongly uphold this view in all other injuries except wounds involving the hollow viscera. In these cases, in our experience, the shock never does pass off. The soiling of the peritoneum must tend to keep up shock. The statement, that for the most part shock never passes off is borne out by the fact that of 36 cases admitted in an almost pulseless condition only three rallied; these were all cases where the liver only was wounded and all three recovered without operation. Bowel cases always steadily deteriorate by being left. Another reason for immediate operation is that internal hæmorrhage may be still taking place. These remarks are chiefly based on experience of shell wounds, bullet wounds being relatively uncommon here. The only delay which is justifiable is in cold weather and if the patient had been lying out for some time. In these cases it is essential that he be thoroughly warmed before his operation, but this should never take more than half an hour to an hour.

The next difficulty in the choice of case for operation is the decision in wounds of the solid viscera—e.g., liver and spleen—and the decision is rendered more difficult by the fact that in many of these cases the missile has passed through the pleural cavity before entering the abdomen. The track of the missile is estimated as accurately as possible, and if it is probable that the liver only is wounded no operation is performed unless there are signs of excessive internal hæmorrhage. We have notes of 11 cases of wounds of the liver treated on expectant lines; of these, 7 recovered and 4 died. Five developed pus in or around the liver, and 3 succumbed to this sequela. Twenty-one cases of wounds of the liver had to be opened up, and in 9 some hollow viscus was found to be wounded as well. From this it is clear that the majority of wounds of the liver must have an exploratory laparotomy performed. A button-hole incision is utterly useless owing to the large amount of blood in the peritoneal cavity. If the splenic region is involved, laparotomy is more frequently necessary as there is more likelihood of some hollow viscus being wounded. Hæmorrhage from the spleen is not usually dangerous unless the large vessels are injured.

In the series of 110 laparotomies one or other kidney was found to be wounded in 14. In every case this was in association with other injuries. In none of our series of 263 abdominal cases was operation necessary for the kidney condition alone, although damage to this organ was fairly frequently met with as shown by pain and hæmaturia.

The complication of the passage of the missile through the pleural cavity before entering the abdomen does not contra-indicate the performance of laparotomy. It was present in 18 of our series of laparotomies, 10 of which recovered. In the majority the solid viscera only were wounded, but in one successful case the bowel was injured as well; another bowel case died from the effects of hæmothorax. In only one case did the operation so aggravate the chest condition as greatly to contribute towards the fatal results. In these cases the anæsthetic of choice is chloroform, hypodermic injection of morphia and atropine having been previously given. It is not advisable to attempt to drain the wound of the liver through the pleural cavity, as of necessity this involves infecting the pleura. In all chest cases great care is taken to drain any hæmothorax that may be present as soon as it is found to have become septic. Occasionally in suitable cases we have tried sewing up the chest wound after excising its edges in order to prevent infection of the pleural cavity.

To show how capricious the course of a bullet may be, the following case is cited:—

Private E. was admitted 60 hours after being wounded. His wound of entry was on a level with the first lumbar spine and 7 cm. to the left of it; the shrapnel ball could be felt under the skin, lying on the sixth right chondro-sternal junction. His general condition was good; he had slight vomiting, hæmaturia, and dullness in the flanks. He had no operation and made an uninterrupted recovery. By a study of cross-sections we made out that the fragment had passed through the perirenal fat striking the cortex of the left kidney; it then skirted the upper border of the pancreas, traversed through the lesser sac of the peritoneum and the gastro-hepatic omentum above the lesser curvature of the stomach. It then pierced the liver and diaphragm, to come to rest on the sixth rib junction half an inch to the left of the right pleural reflection and immediately below the pericardium.

Moribund cases.—It is difficult to state the signs that are relied upon in forming an opinion that a case is hopeless. The term is justified by the fact that the average duration of life in 33 moribund cases admitted here was under five hours, in spite of everything that was done to try to rally them. In most of the cases the pulse was imperceptible or almost so, and in some cases where it could be felt it was irregular. Many of the cases were suffering from complicating wounds of limbs or head. As the general sensibility becomes more clouded tenderness and rigidity of the abdomen become less marked. If a case is seen to be hopeless an operation should not be performed, as should they survive the operation death in these cases is much more painful.

Another type of case in which operation should be avoided is that where the missile, with or without passage through the abdominal cavity, has lodged in the vertebral column and caused lesion of the spinal cord. Every case on admission is tested for paralysis of the lower extremities, even when the wound is in the mid-axillary line or on the point of the shoulder. In one rush of work we had seven spinal cases in two days, in most of which the spinal lesion was undiagnosed before admission. These spinal cases may have intense pain referred to the abdomen which might cause a mistaken diagnosis of a penetrating wound of the peritoneal cavity.

Treatment.

During a rush the order in which cases are sent to the theatre is of great importance. Gut injuries are sent first, then the cases of suspected wounds of the solid viscera, and lastly contour wounds. At these times one of us remains constantly in the receiving room, as the order of cases for operation may have to be changed from time to time as this or that patient develops fresh symptoms. As to the technique of the operation, little need be said.

SERIES OF 110 CASES OF LAPAROTOMY FOR WOUNDS OF THE ABDOMEN.

"Result" col.: R, recovered; D, died. "Vomiting." "Rigidity." "Tenderness" cols.: P, present; N, not present; P(h), present (hæmorrhage); P(ls), present (left side); P(rs), present (right side); NM, not marked; P(hy), present in hypogastrium; L, local.

No.	Result.	Hrs. after injury.	Pulse.	Vomiting.	Position of entry wound.	Rigidity.	Tenderness.	Injury found.	Complications.
1	R	4	88	—	Below and to left of umbilicus.	P	P	Three rents in upper part of jejunum. Bleeding from mesentery.	—
2	D	4½	84	P	Right chest behind.	P	P	Penetrating wound of right kidney. Two holes in small intestine.	Right hæmothorax.
3	D	7½	100	—	Right buttock.	P	P	Two holes in small intestine 14 in. above cæcum. Mesentery bleeding.	Iliac bone smashed.
4	D	3	109	P	,,	P	P	Many holes in small intestine. Three resections.	Wounds of upper & lower limbs.
5	D	14	80	P	Lower right chest.	P	P	Left kidney torn (nephrectomy). Spleen torn.	Three ribs broken. Old tubercle of lung.
6	R	5½	85	N	Transverse, sub-umbilical.	P	P	Abdominal wall opened from right to left flank. No injury to gut.	Injuries to left forearm.
7	R	7½	80	N	Below and to left of umbilicus.	P	P	Ten wounds in jejunum. Resection 20 in. Hole in meso-colon.	Fracture of left radius through-and-through wound.
8	D	6½	72	N	Right iliac region.	P	P	Wound of cæcum and transverse colon and ileum.	—
9	D	14	96	P	Left buttock.	P	P	Two holes small intestine. Hæmorrhage from intern. iliac.	—
10	D	11	120	N	Left loin.	P	P	Wound 3 in. long, 4 in. below duodeno-jejunal junction. Bruising of left kidney.	Much laceration of muscles of back.
11	D	12	88	P	Right rib margin in front.	—	—	Right lobe of liver almost torn in two. Much bruising of abdominal wall.	—
12	R	3½	92	N	Left chest.	P	P (ls)	Wound of and hæmorrhage from spleen.	Penetrating wound of chest.
13	D	—	112	—	Left rib margin; omentum prolapsed.	P	P	Two holes in transverse colon. Large rent in diaphragm through which stomach and transverse colon passed into left pleural cavity.	—
14	D	22	80	—	Right rib margin; omentum lacerated.	P	P	Lower margin of liver smashed. Three holes in small intestine.	—
15	R	33½	104	P	Left buttock.	P	P	Wound of spleen and wound of small intestine.	Peritonitis present.
16	D	14	120	N	Right buttock.	P	—	Wound of liver.	Retro-peritoneal hæmorrhage.
17	D	22	108	P	Right loin.	P	—	Wound of right kidney, liver, and diaphragm.	Right chest penetrated.
18	R	30	132	P	Left buttock.	P	P	Wounds in cæcum and 8 or 9 holes in lower part of small intestine. Resection 12 inches.	Peritonitis present.
19	R	48	88	N	Over left great trochanter.	P (ls)	P	Muscles of abdominal wall torn through, on left side omentum injured.	Iliac bone fractured.
20	D	15	—	P (h)	Below and to left of umbilicus.	P	P	Twelve holes in small intestine. One large hole in transverse colon, and two holes in stomach.	Peritonitis.
21	R	6	100	—	Left 12th rib behind	P	—	Left kidney penetrated. Spleen torn (sewn with catgut).	Lower three ribs smashed.
22	R	11	128 (vf)	P	Below and to left of umbilicus.	P	P	Eight holes in jejunum (upper part); three wounds in great omentum.	Wounds left thigh and right arm.
23	D	11	115	—	Right buttock.	NM	P	Seven holes in small intestine. Appendix torn away.	Wound of right leg. Fractured right pelvis.
24	D	17	148	NM	Right flank.	NM	P	Wound in ascending colon. Wound of right kidney.	Retroperitoneal hæmorrhage (extensive).
25	R	6½	100	P	Mid-line below umbilicus.	P	P	Five wounds in small intestine, one almost dividing gut. Three holes in mesentery.	Wound of face.
26	D	7	106	P	Left buttock.	P	P	One wound in small intestine. Two wounds in descending colon.	Wound of right calf. Fractured ilium.
27	R	3½	92	N	Right costal margin	P (rs)	P	Deep tear in right lobe of liver.	Wound in back.
28	D	3½	100	P (h)	Right chest.	P	—	Penetrating wound of liver. Tear 3 in. long in stomach. One hole in small curvature. One hole in small intestine.	Penetration of right chest.
29	D	12½	100	P	Right buttock.	P	P	Wound in small intestine.	Peritonitis. Wound of rt arm.
30	R	5	90	—	Right epigastric.	N	P	Missile passed down cutting through abdominal muscles, bruising anterior wall of bladder, and dividing urethra. No injury to gut.	Large pelvic hæmatoma.
31	D	6½	80	N	Left loin.	P	P	Spleen torn and bleeding, removed. Kidney torn and bleeding, removed.	—
32	R	5	92	N	Epigastrium.	NM	NM	Through-and-through wound of right lobe of liver. Much bleeding. No injury to gut.	—
33	R	15½	93	N	Left iliac.	P	P	Hæmorrhage from mesocolon.	Retroperitoneal hæmatoma.
34	D	17½	128	N	Left flank.	P	P	Tear in splenic flexure. Left kidney torn.	Left thumb blown off. Wound of scalp.
35	D	6½	—	N	,,	P	P	Four holes upper part of jejunum. Two holes transverse colon.	Excessive retroperitoneal hæmorrhage.
36	D	16	98	N	Right chest.	P	P	Four holes in small gut. Tear of great omentum.	Seven wounds of right leg.
37	D	16	64	P	Right flank.	P	P	Eight holes in small intestine. Resection. Three holes in colon. Right lobe of liver torn.	—
38	D	29	110	—	Right lower chest.	P	P	Wound in diaphragm, liver, and omentum.	Right chest wound.
39	D	28	—	N	Left of umbilicus.	P	P	Two holes in jejunum, one tear in transverse colon.	General peritonitis.
40	D	34	112	P	Left flank.	P	P	Four tears in small intestine. Resection.	—
41	R	36	94	P	Right of umbilicus	P	P	Wound small intestine. Hæmatoma in omentum.	Peritonitis present. Fractured left iliac bone.
42	D	30	98	—	Right epigastrium	P	P	Many holes in small intestine. (28 in. resection.) Hole in ascending colon.	Gas gangrene in mesocolon.
43	D	36	106	N	Left flank.	P	P	Hole in colon, stomach, and small intestine.	Gas gangrene in left thigh.
44	D	60	124	N	Epigastrium.	P	—	Tear in ascending colon.	Right iliac bone fractured. Wound of right leg.
45	R	32	100	P	Left of umbilicus.	P	P	Two holes in jejunum. Tear in transverse colon.	General peritonitis. Bronchitis.
46	D	5	95	N	Right buttock.	P	P	Three tears in small gut. Two holes in rectum.	Died under stovaine anæsthesia.
47	R	8	106	P	Left buttock.	P	—	Two holes in colon. One tear in small intestine.	General peritonitis present. Compound fracture of left tibia. Fracture of left iliac bone.
48	D	6½	100	—	Left rib margin.	P	P	Jejunum torn across. Resection. Hole in transverse colon. Sigmoid torn across.	Left kidney lacerated.
49	R	11	82	P	Left iliac region.	P	P	Hole in jejunum. Hæmorrhage into mesentery.	—
50	R	12½	124	N	Left thigh.	P	P	Several holes in cæcum. Appendix inflamed.	Penetrated left iliac bone.
51	D	5½	100	—	Right epigastric.	P	—	Four inch rent in duodenum.	Retro-peritoneal tissues opened up.
52	R	5	126	—	Left iliac region.	P (hy)	—	Two holes in bladder, two in rectum, missile leaving body through left buttock.	—
53	D	6	136	N	—	P	P	Many holes in small intestine. (Resection.) Many holes in colon. Colectomy. Ileum implanted in sigmoid.	—
54	R	5½	86	P	Lt. chest; omentum & sm. int. prolapsed.	P	—	Four feet of small intestine cleaned and replaced. Spleen lacerated and bleeding. Splenectomy.	Left chest opened. Empyema subsequently drained.
55	D	—	90	P	Left buttock.	P	P	Much hæmorrhage into peritoneum. No lesion of gut found. Wound of left kidney passing up through diaphragm to left lung.	Multiple wounds of leg.
56	R	12½	100	—	Left epigastric.	P	—	Stellate tear in left lobe liver. Much hæmorrhage. Sewn up.	—
57	R	5½	96	N	Left lower chest.	—	—	Hole in small intestine. Lacerated wound of splenic flexure of colon. Resection. Omentum herniated.	Subsequent pneumonia.
58	D	5½	108	P	—	P	P	Tear in colon. Six separate holes closed. Many holes in small intestine higher up. (Resected.)	—

SERIES OF 110 CASES OF LAPAROTOMY FOR WOUNDS OF THE ABDOMEN—(*continued*).

"Pulse" col.: (vf), very feeble; (vs), very small; (v.so), very soft; (vw), very weak; (s), small.

No.	Result.	Hrs. after injury.	Pulse.	Vomiting.	Position of entry wound.	Rigidity.	Tenderness.	Injury found.	Complications.
59	D	14	118	N	Right epigastric.	P	P	One tear in small intestine. Tear in diaphragm.	Left pleural cavity opened. Lung collapsed.
60	D	3½	100	N	Through and through flanks.	P	P	Several large wounds in stomach (gastrectomy). Tear in colon. Liver smashed up.	—
61	R	4	88	N	Left flank.	P	P	Multiple tears in jejunum (2 ft. resected). Two perforations higher up (sutured). Large tear in colon.	—
62	R	7½	84	P	Right flank.	P	P	Large wound of liver, bleeding.	Right pleural effusion (subsequently).
63	D	3	90	N	,, ,,	P	P	Two holes in jejunum. Two holes in hepatic flexure of colon. Wound of liver.	Wound of right chest. Compound fracture right elbow.
64	R	3	88	N	Right iliac region.	P	P	Multiple wounds small intestine (resection). Torn external iliac vein.	Compound fracture rt. humerus and rt. thumb. Vomited round worm.
65	R	10	100	N	Right chest behind.	P	P	Two tears in hepatic colon.	Penetrating wound of chest.
66	R	4½	80	N	Epigastrium.	P	NM	Wound of liver, escape of bile.	—
67	R	14	88	N	Right chest.	—	N	Penetrating wound of liver.	—
68	D	16	80	N	Left buttock.	P	P	Many holes in small intestine.	Penetrating wound of chest. Peritonitis.
69	R	3½	88	N	Right chest.	—	P	Penetrating wound of liver. Much bleeding.	Right chest penetrated.
70	R	3½	88	P(h)	Left chest.	P	P	Two large wounds of stomach. Hole in diaphragm.	Penetration left chest.
71	R	5	96	P(h)	Left flank.	P	P	Two wounds of stomach. Wound of left kidney.	Urinary fistula, since healed up
72	D	6½	120	N	Right chest.	P	P	Much bleeding from lacerated spleen. Splenectomy.	Left chest opened up.
73	D	10	80 (vs)	N	Right epigastric.	P	P	Extensive laceration of liver with hæmorrhage.	—
74	D	11	96	P (h)	Left flank.	P	P	Two holes in small gut. Three in large gut.	General peritonitis; lived 10 days. Died of broncho-pneumonia.
75	D	12	96	—	Right rib margin.	P	P	Deep laceration of both lobes of liver.	—
76	D	12½	98	N	Right flank.	P	P	Transverse colon riddled. Resection.	—
77	D	12	92	N	Lt chest posteriorly.	P	P	Laceration of spleen.	Left chest opened. Wounds right arm.
78	D	2	—	N	Left and above umbilicus.	P	P	Stomach torn from end to end. Several tears in small gut. Splenic flexure (resection).	—
79	R	7½	80	—	Glancing wound of chest and right abdominal wound.	P	P	18 in. of gut prolapsed. Two tears in jejunum, one 1½ in. long.	—
80	R	3	80	N	Right flank.	—	—	Transverse colon divided three-fourths of its circumference. One hole in small intestine.	Fractured right ilium.
81	D	9½	102	N	Right buttock.	P	P	Colon divided. Several tears in small gut.	,, ,,
82	D	4½	80 (vso)	P	Right rib margin.	P	P	Wound of liver. Two wounds of stomach. Multiple wounds of small intestine. Kidney lacerated (nephrectomy).	—
83	R	6	84	N	Left buttock.	NM	P	Three holes in sigmoid flexure.	Fractured left ilium. Wound right leg.
84	R	5½	84	N	Left lower chest.	P	—	Two holes in stomach, size of florin. Penetrating wound of liver.	Fractured ribs left side.
85	D	5	80	P	Through flanks. Omentum prolapsed from each.	P	P	Large tear in stomach. Large stellate wound of liver.	—
86	R	4	100 (vw)	P	Right buttock.	P	P	Small intestine almost divided. Much hæmorrhage.	Fractured right ilium.
87	D	2	80	N	,,	P	P	Small intestine almost divided in two places. Cæcum torn.	Fractured right ilium. Large retroperitoneal hæmorrhage.
88	D	8½	104	N	Multiple.	P	P	Six holes in small intestine. Two holes in sigmoid.	Wound of thigh. Wound of right hand.
89	R	6	96	N	Left flank.	NM	P	Two wounds in small intestine. One hole in transverse colon. One hole in omentum.	—
90	R	8½	92	N	Right buttock.	P (rs.)	P (rs.)	Much retroperitoneal hæmorrhage. Bladder opened on right side. Peritoneal cavity punctured in two places. No bowel injury.	Multiple wounds of both buttocks, head and right side.
91	R	4	92	P	Umbilical region.	N	—	Three holes in small gut.	—
92	R	4	80	—	Right rib margin.	P	—	Penetrating wound of liver. Wound of right kidney.	Large retroperitoneal hæmatoma. Wound of face, hand, and chest.
93	R	2	98	N	Left chest.	P	—	Spleen torn and bleeding. Splenectomy.	Penetrating wound of left chest.
94	D	17	94	N	Left loin.	P	P	Two holes in small intestine.	General peritonitis. Died of bronchitis tenth day.
95	D	3	130	—	Left buttock.	—	—	Small bowel prolapsed. Multiple large holes in small intestine (resection). Sigmoid torn through.	—
96	D	8	104	N	Right epigastric.	P	—	Two holes in small intestine. Much bleeding from hole in mesocolon.	Peritonitis present.
97	D	8	93	N	Left flank.	P	—	Wound 1½ in. long in splenic flexure.	Wound right arm. Hæmorrhage from axillary vein.
98	D	11	84	P (h)	Left epigastric.	P	P	Wounds anterior and posterior surfaces of stomach. Wound of head of pancreas.	Died fifth day.
99	R	8	—	—	Left chest.	P	NM	Wound of liver and spleen.	Penetrating wound left chest. Subsequent resection for empyema.
100	R	3	64	N	Left buttock.	P	P	Hole in rectum. Hole in small intestine.	Penetrating wound right pelvic wall.
101	D	5	84	P	Epigastric.	P	P	Two holes in stomach. Holes in transverse colon. Damaged left kidney.	—
102	R	5	108	P	Left buttock.	P	P	Six wounds as large as a shilling in small intestine. Hole in mesentery. Bleeding.	—
103	D	18	94	N	Left flank.	N	N	Five holes in small intestine.	Symptoms on admission extremely masked by morphia. Wounds of left shoulder and forearm.
104	D	5	100	N	Epigastrium.	NM	NM	Three holes in stomach. Descending colon torn in two.	Severe flesh wounds in both thighs.
105	D	6½	88	N	Right buttock.	P	P	Four holes in ascending colon.	Fractured right ilium.
106	D	9	108	N	Left loin.	P	P	Two holes in stomach. Two holes in jejunum, one almost complete. Three holes in splenic flexure. Left kidney damaged.	Multiple wounds in thighs and buttock.
107	R	2½	78	N	Left of umbilicus.	L	L	Abdominal wall torn. Omentum protruding and removed.	—
108	D	5	138	N	Right buttock to left buttock.	NM	P	Extensive retroperitoneal and intraperitoneal hæmorrhage. No injury to gut.	Sacrum smashed in two.
109	D	14	86(s)	N	Right chest.	P	P	Large wound in right lobe of liver.	Penetrating wound in right chest. Right lung collapsed.
110	D	2	76	N	Left iliac fossa.	—	—	Most of small gut prolapsed. Gut torn through and lacerated in two places (two resections).	Wound of leg.

A large incision is made nearly from ensiform cartilage to pubes. A central opening is preferable to one through the pararectal line, even when the damage is on the flank, for one gets less bleeding in the parietes, also a better opening is produced for examination of the interior and the surgeon can commence with a less anæsthesia and before a complete relaxation of the muscles is attained. If later in the operation there is any difficulty in dealing with such parts as the spleen or colic flexures, a transverse incision into the flank may be made, and it is surprising to note how well and firmly this subsequently heals.

Blood is present in the peritoneal cavity in almost every case, but this may be disregarded and a routine examination made at once, first of the small intestine commencing from the cæcum, then of the large intestine commencing from the same place, followed by an overhauling of the stomach, liver, spleen, and kidneys. The damage, as met with, is repaired. Wounds in the intestine are sewn if possible rather than a resection done. We have learned by experience that the mesentery may be separated from the gut for a distance of 2 or 3 inches without the blood-supply of the bowel being impaired.

Quickness and gentleness are the essentials of the treatment of abdominal injuries. In sewing up, through-and-through salmon-gut sutures are first placed in position and the peritoneum is closed with a catgut stitch. In cases where the peritoneum does not come together easily, especially above the umbilicus, we bring it together with catgut passed through the peritoneum and rectal sheath. The salmon-gut sutures are then tied. Time must not be lost in elaborate closing of the belly wall. As a rule, it heals soundly and cleanly. In three cases a part of the abdominal wall gaped open about the tenth day and had to be restitched, but no ill resulted, and the patients made good recovery.

Saline is given intravenously on the table, if necessary, but not as a routine, as we have thought that bronchial secretion was increased by this measure.

When the patient is sent back to the ward he is placed for 8 or 12 hours with the foot of the bed well raised. Subsequently he is made to assume Fowler's position. During the first few hours after operation every endeavour must be made to combat shock and to keep up an adequate blood pressure in the circulation. To this end we employ subcutaneous or rectal saline injections, pituitary extract, and the judicious use of morphia. For the same reason it is not wise to restrict for too long the giving of nourishment by the mouth.

Thirst is always a distressing symptom, and frequent small drinks of water, albumin water, peptonised milk, or weak beef-tea are allowed from the commencement. Occasionally, due to atony, the stomach becomes over-distended, and this is shown by frequent small bile-stained vomits. Lavage of the stomach is then resorted to, generally with great relief to the patient.

Results.

The nearer the front the operating centre is situated, and the earlier the cases are brought to it, the higher will be the mortality owing to more patients arriving alive who would have succumbed if they had been transported farther back. At the same time, one hopes that more lives are saved. Statistics of necessity must be somewhat fallacious, as the majority of patients have multiple wounds involving other parts of the body besides the abdomen.

The results of six months' work give the following figures:—

Total number admitted with abdominal wounds, 263.
Recovered, 136 = 51 per cent. Died, 127 = 49 per cent.
Total number admitted "with penetration," 180.
Total number on whom a laparotomy was performed, 110.
Recovered, 46 = 41·5 per cent. Died, 64 = 58·5 per cent.
Laparotomies performed where wounds of solid viscera only were found, 21.
Recovered, 13 = 62 per cent. Died, 8 = 38 per cent.
Laparotomies performed for injuries to hollow viscera only, 62.
Recovered, 22 = 35·5 per cent. Died, 40 = 64·5 per cent.

The following analysis gives the relative frequency that the different organs were wounded in our series of laparotomies: Stomach, 14; small intestine, 60; large bowel, 40; rectum, 3; liver, 24; spleen, 11; kidney, 14; bladder, 3.

Note.—Wounds of the abdomen, though involving the viscera, that were not treated by a separate median incision are not included as "laparotomies" in the above series.

We feel we owe a debt of gratitude to Surgeon-General Sir Anthony Bowlby and Colonel Maynard S. Smith for much encouragement and advice in our work, and to Surgeon-General Bruce Skinner for help and support given us on many occasions.

THE SURGERY OF AMPUTATION STUMPS,

BASED ON THE EXPERIENCE OF 2000 CONSECUTIVE CASES.[1]

BY G. M. HUGGINS, F.R.C.S. ENG.,

TEMP. CAPTAIN, R.A.M.C.; SURGICAL SPECIALIST, PAVILION MILITARY HOSPITAL, BRIGHTON.

THE surgery of amputations has entered a new era with the war. There are various reasons for this development. First, it must be remembered that in the experience of this generation modern aseptic methods meant a negligible number of amputations. Then, the experience of the past generation of surgeons (who were of necessity masters of the art) is not really applicable to the present circumstances. The old surgeons planned their operations essentially for speed and for use of peg limbs; and the classical operation for the foot belonged to an age when artificial joints had not been introduced. Nowadays the aim of an amputation must include the ultimate fitting of the often delicate and complicated artificial limb which the modern instrument-maker produces.

Primary amputations are performed to arrest infection, and so to save life. Further operation, or radical treatment, is commonly necessary in England to prepare or improve the stump, so that eventually a satisfactory limb may be fitted to it. The aim of this article is to elucidate this secondary treatment—that is, the preparation of stumps for artificial limbs—and is based on the experience of nearly 2000 cases which I have seen at the Pavilion Hospital, Brighton. At the same time these considerations will give a basis for action in the case of the primary amputations.

Classification of Cases.

The cases seen at the Pavilion Hospital have been amputated two months to two years before coming under my care, and may be roughly classified as follows: (1) Good stumps not ready for an artificial limb; (2) unhealed stumps from primary amputations; (3) sequestrum formation; (4) sinus; (5) bad scars and eczemas; (6) pain or tenderness; and (7) joint contractures. Three months must be taken as the minimum time in which an amputation stump can become ready for fitting an artificial limb, and then only if a tight bandage has been worn and massage used daily. The bandage and the massage accelerate the shrinking of the stump.

Unhealed stumps are, as a rule, the result of the so-called guillotine amputations. An amputation of the guillotine type, or one in which the flaps have not been stitched up, should be treated with continuous skin extension from the earliest possible moment until healed or operated on again; continuous extension will almost cover a guillotine stump in a few weeks

Every infected stump, after healing is well advanced, suddenly shrinks and the skin becomes loose; when this occurs the time has come to re-fashion the stump. The length of time varies with different stumps, but two to three months is a usual time for the thigh; it may be longer. If this time is chosen it is sometimes possible to remove the scar and bring the skin edges together without shortening the bone. It is hardly ever necessary to remove more than half to one and a half inches of bone. The importance of a few inches in length of the bone cannot be over-estimated in most amputations. The other advantage of waiting is the improvement in general health, and the higher resistance to infection that the patient develops.

I have been very much struck, in studying the medical history of the cases under my care, by the large number of bad stumps the result, as far as one can judge, of operating on guillotine stumps within two months of the original amputation. It would appear that the risk of infection is much greater in the early days, either because the infection is more virulent or the patient's resistance is lower, or both. At any rate, the very large number of cases suffering from necrosis of bone that I have to deal with at the Pavilion Hospital are almost all in stumps that have been shortened within two months of a guillotine amputation, and, further, in my own cases where I have to shorten guillotine stumps (which I now postpone until the local and general condition

[1] Abstract of a paper read before the Brighton and Sussex Medico-Chirurgical Society.

indicates that the time has arrived for operation), although sepsis is met with from time to time, it is never of such a nature as to cause necrosis of bone; and, except in two cases, I have not been obliged to remove more than two or three stitches for irrigation and drainage. Even if necrosis of bone does not occur, severe sepsis leaves a bad irregular surface where long flaps with muscles have been used, or a large scar adherent to bone where skin-flaps only have been used. In both cases further operation is often necessary.

Sequestrum.—No stump is ready to send to the instrument-maker until it has been radiographed, as it is quite a common thing for a stump to heal and yet contain a sequestrum, with the result that as soon as an artificial limb is worn an abscess forms and a sinus results. If the sequestrum is small at least two pictures should be taken to enable the surgeon to know where it is, so that it can be removed with the least possible damage to the stump. Sequestra in stumps are generally buried in new bone thrown out from the end of the shaft. The amount of new bone is often very large, and I have had to remove as much as an inch of new bone before coming to the sequestrum. New bone which is cancellous can be chiselled away freely, but the shaft of the bone must on no account be injured, because the inflammatory reaction following this operation is often very severe, and should the shaft be injured there is a risk of further necrosis.

Sinus.—Sinuses in stumps are due to (1) silk ligatures, (2) necrosis of bone, (3) foreign matter, such as metal, or (4) long septic tracks in scar-tissue which are unable to close from imperfect drainage and low vitality. I always use a crochet-hook instead of a probe in examining a sinus, and with this very useful little instrument ligatures or small sequestra may be removed. It is not advisable to operate on a sinus with a view to removing ligatures unless repeated attempts with a crochet-hook have failed. When silk is the cause of a sinus there are often several pieces. In one case 17 silk ligatures were discharged from a thigh stump in the course of three months. Four or five is a more usual number, and a great deal of harm may be done to a stump by exploring for silk. Silk should never be used for ligatures in operating on amputation stumps, for it is the cause of 40 per cent. of the sinuses I treat, and causes prolonged convalescence and needless suffering.

The second and third causes of sinus, necrosis and foreign material, require localising by the aid of X rays, and the remarks made under "sequestrum" apply.

The fourth class of case, the long septic track in scar-tissue, is difficult to diagnose, and can only be proved by exploration of the sinus. If nothing in the nature of a foreign body is found, I place the case in this class and excise the skin round the sinus and remove the deep part of the scar and then sew up the wound. Packing the wound and attempting to obtain healing from the depth often leads to a bad puckered scar; the stitches can always be removed if necessary.

Pain in the stump or tenderness of the stump.—Causes: (1) Nerves adherent to the scar; (2) bulbous nerves; (3) sequestrum in new bone in a healed stump; (4) spurs of new bone; (5) chronic abscess. Nerves adherent to the scar (the result of not shortening the nerves at the time of amputation or when shortening the stump) always have to be removed, and in this connexion it is important to remember that a nerve such as the internal saphenous is as important as the great sciatic, both in the thigh and in the leg. As a rule, removal of the nerve from the scar is the best procedure, but in the case of short leg stumps I always remove the popliteal nerves at the bend of the knee and the internal saphenous in Hunter's canal, for by this means there is no fear of the new cut end receiving pressure from the bucket and so becoming tender again. Should an amputation stump suppurate there is grave risk of the nerves becoming adherent and painful, even if shortened. Bulbous nerves not adherent to the scar, as a rule, become painless in about three to four months, and so I do not remove them until I have waited this length of time. The converse is true, and bulbous nerves not tender or painful sometimes become so after three or four months, and when this occurs I remove the bulb, as the prognosis is bad without operation. One bulbous nerve may cause extensive symptoms, such as a large area of hyperæsthesia, and in one case it gave rise to epileptiform fits. These occurred over a period of some months, but ceased altogether after removal of the bulb.

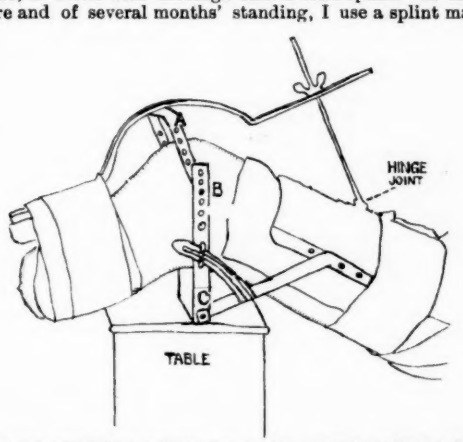
Spurs of new bone.—Spurs of new bone are common, and every now and then cause pain and require removal. The large amount of new bone formation in stumps that have been infected is striking, and it often takes on fantastic shapes and follows muscular attachments and sinuses. Spurs running into the adductor muscles are the most common, and it is in this situation that I have sometimes had to remove them on account of pain. It is important to be sure that the pain apparently due to the spur is not caused by a bulbous nerve, as in my experience it is rare for a spur alone to cause pain.

Chronic abscess.—In these cases the diagnosis will generally be bulbous nerve, but instead of a nerve a small abscess will be found, sometimes round a ligature and sometimes with no apparent cause.

Bad scars and eczema.—There are two classes of unsatisfactory scar—one due to insufficient covering of the bone end and the other to too much covering—in stumps that have been infected. In the first group, if the scar is very large and liable to ulcerate it is necessary to excise it after skin extension has been used. In the second group, if the edges are very puckered and turned in the scar is liable to eczema; and in leg stumps, after wearing an artificial limb, it is apt to break down from the softening which results from the sweat decomposing. In excising the scars of the second class it is important to re-fashion the deep parts as well as the skin, otherwise the condition will relapse when healing occurs.

Joint contractures.—In a great number of cases which I see the following conditions are found: (1) Flexed knee; (2) flexed and abducted hip; (3) adducted shoulder.

Flexion deformity of the knee-joint, if only of a mild degree, is cured with massage and a back-splint. If more severe and of several months' standing, I use a splint made



Splint for straightening flexed leg stumps.—Splint applied to flexed leg stump. The joint at C, and the ability to alter the length of the bars C, B and B, A, enable the splint to be centred over the knee-joint in any case. The splint was designed to be fixed in plaster-of-Paris.

for me by Major Lightfoot, of the Hove War Hospital Supply Depôt, and by means of this splint most flexed knees can be straightened. If this fails the posterior capsule of the joint should be divided with a tenotome. Tenotomy of the hamstrings alone is not likely to correct the deformity if adequate splinting has already been tried without success.

The deformity of flexed and abducted hip is usually corrected by massage and movements; but in the event of failure tenotomy of the tensor fasciæ femoris should be done, and in some cases it is necessary to divide the anterior portion of the capsule of the hip-joint. The correction is maintained by a plaster-of-Paris spica. An artificial limb can never be worn satisfactorily with a flexed thigh stump.

Adduction deformity of the shoulder is treated with massage and movements; if these fail an anæsthetic is given, and the condition forcibly corrected, the correction being maintained for some weeks in a plaster-of-Paris splint.

Joint contractures can, and should, be prevented by daily movements of the joints likely to become contracted, aided by bandages and splints. It is impossible to splint properly, or to move a stump, when the nerves have been left unshortened, as the pain is too great.

Considerations guiding Shortening of Amputation Stumps.

In shortening stumps I only use skin flaps, and the flaps used are shorter than the flaps generally recommended in

text-books. Too much skin gives a bad flabby stump, which becomes ultimately badly nourished. I never now use muscle in the flaps, as, rather than being an advantage, it has several disadvantages; in practice a guillotined arm stump is often better than the stumps resulting from skin and muscle flaps. When shortening amputation stumps I am guided by the following considerations:—

The Foot.—A Syme amputation with bone section a quarter of an inch above the articular surface of the tibia, and with all the bony projections rounded off, gives a stump short enough to fit an artificial ankle, and is end-bearing. This must be regarded as the best amputation that can be done. A Pirogoff stump is too short to use as a peg and too long to fit an artificial foot to; it is an amputation of no practical value, and should never be done. The stump of a Chopart, as a rule, becomes deformed, and even if it does not it cannot compare with a Syme, owing to the difficulty of fitting an artificial appliance. A guillotine Chopart as a primary operation leaves the necessary material for doing a satisfactory Syme later.

The Leg.—Amputation in the middle third of the leg, at the lower end of the prominence of the calf, using a long anterior and short posterior flap, gives the most serviceable stump below the knee with the exception of a Syme. Amputations in the lower third of the leg give a weak scar, liable to ulcerate in winter, and they necessitate the wearing of a clumsy and heavy artificial limb. Amputation at the seat of election should not be done if greater length can be given, and never merely to improve the scar, unless end-bearing can be obtained for certain; in the absence of end-bearing the importance of an extra inch of lateral bearing cannot be overestimated. Unless two fingers can be placed side by side on the inner side of the posterior surface of a leg stump when flexed, the stump is too short to use a below-knee artificial leg, and a kneeling leg will have to be worn. When shortening a leg stump it is advisable to do a supracondylar amputation, unless this length of stump can be obtained.

The Knee.—Amputations through the knee must be well covered, and it is unusual for enough skin to be available, for if enough skin is available a short below-knee stump could, as a rule, be obtained. The patella should always be removed in amputations about the knee. The best amputation about the knee is through the top of the condyles, rounding off all bony projections, and if this be done an end-bearing stump is made which is short enough to allow an ordinary artificial knee-joint to be fitted. Stokes-Gritti's amputation is an unnecessary refinement unless the bone section has to be made above the cancellous part of the femur, and then it should be used to make the stump end-bearing.

The Thigh.—Every inch of the femur above the condyles is of the utmost value until the upper third is reached. In this situation, unless two and a half inches of bone below the lesser trochanter can be saved, a thigh bucket cannot be used. Therefore it is best to amputate through the neck of the femur, when this amount of bone is not available; a less severe amputation that will be satisfactory is just through the junction of the great trochanter and shaft.

The artificial leg for a hip-joint amputation is a sound practical appliance and can be fitted to a subtrochanteric amputation. It is not satisfactory with longer stumps or with a long fleshy stump, such as the Furneaux Jordan. It is important to consider this before interfering with a guillotine stump in the upper half of the thigh. I often see nice-looking stumps, the result of re-amputation, which are too short for a thigh bucket and bad or impossible for a hip bucket, and, moreover, some of them are covered with muscle, showing that more bone could have been saved. A conical stump can no longer be regarded as necessarily bad, as they are often satisfactory.

The Wrist and Forearm.—One movable finger is better than any artificial appliance that can be obtained. Through-wrist amputations must now be regarded as satisfactory. Every inch of bone from the lower end of the ulna to within three inches of the upper end of the ulna is of value; less than three inches of ulna cannot be made use of, and so, when compelled to re-amputate a forearm stump, unless three inches of ulna can be left, it is best to do a supracondylar amputation, removing the supracondylar ridges.

The Arm.—Every inch of humerus above the condyles is useful. Guillotine stumps make better stumps than amputations where muscle is placed over the end of the bone. Unless one and a half inches of bone below the anterior axillary fold can be saved the shoulder-joint cannot be used. The shoulder-joint artificial arm does not press on the stump, and so it is not necessary to remove bulbous nerves from these very short stumps unless they give rise to neuralgia.

Summary.

No secondary amputations should be performed in cases of guillotine amputations until all œdema has disappeared and skin extension has been employed for six weeks.

Guillotine amputation stumps above the middle of the leg or middle of the thigh should never be shortened until healed unless it is decided that the knee-joint or hip must be sacrificed. When shortening has to be done the minimum amount of bone necessary for utilising the joint above should always be borne in mind. A guillotine amputation may make a satisfactory stump in the leg and thigh, and almost always does in the forearm and arm without further re-amputation.

Bone in a stump does not necrose unless infected. Delay in shortening stumps reduces the risk of infection, because infection is not in the wound only but in lymphatics leading from the wound. The amount of matting round the vessels leading to or from an amputation stump is very striking.

Silk should never be used for ligatures in operations on stumps. Amputations should be done by skin-flaps only, and no muscle should be utilised in the flap, the pad of fibrous tissue formed over the end of the bone from the organising clot being all that is necessary. All nerves, and not merely the main nerves, must be shortened at the time of the amputation or re-amputation.

To prevent deformity, daily exercising the joints and the employment of splints and bandages are essential measures in preparing the stump for the artificial limb.

A good Syme amputation leaves the patient with little disability, and amputations through the tarsus should never be done as a secondary operation.

KORSAKOW'S PSYCHOSIS IN ASSOCIATION WITH MALARIA.

BY HILDRED CARLILL, M.A., M.D. CANTAB., M.R.C.P. LOND.,

ASSISTANT PHYSICIAN, WEST END HOSPITAL FOR DISEASES OF NERVOUS SYSTEM, LONDON, AND SEAMEN'S HOSPITAL, GREENWICH; LECTURER IN MEDICINE, LONDON SCHOOL OF CLINICAL MEDICINE, ETC.; TEMP. SURGEON, R.N.; NEUROLOGIST TO ROYAL NAVAL HOSPITAL, HASLAR.

DURING the war a large number of patients have been seen who have lost their memory. This is not infrequent among those who are suffering from the effects of shell shock. In other cases the condition has undoubtedly been simulated in order that the patient may have a better chance of escaping from uncongenial service or it has been assumed to excuse some breach of discipline. A few patients have come under observation in whom loss of memory was one of the signs of dementia paralytica and in several others it occurred after concussion of the brain. In the latter class of patients it is not uncommon to find that the memory of the accident or of the circumstances which lead up to it is completely lost. In several of the forms of alcoholic insanity, for instance in delirium tremens and in chronic alcoholic poisoning, it is common to find that the memory is defective. It occurs too in some forms of senility and also after attacks of epilepsy

Among these various conditions there stands out prominently that form of loss of memory which was described originally by Korsakow as occurring in patients of alcoholic habits who showed also signs of peripheral neuritis. The condition was known as the polyneuritic psychosis. Frequently, however, it could not be proved that alcohol took any part in bringing about the disease, and later it became established that other illnesses, such as typhoid, malaria, diabetes, arsenical poisoning, &c., all of which are at times associated with peripheral neuritis, may give rise to the particular peculiarities described by Korsakow. Furthermore, many cases are on record in whom neither alcohol nor peripheral neuritis appeared to have any part, and it is agreed at present that, while the typical cases are met with

in alcoholic patients with neuritis, similar symptoms, which are indistinguishable from them, may be met with occasionally without neuritis and without alcoholism.

The essential features of the disorder are loss of memory for recent events and difficulty in concentrating the attention. The mental disturbance is one mainly of confusion of thought, disorientation, and forgetfulness. The patient loses the power of keeping events in their chronological order, and he constantly transfers to the present experiences which belong to the distant past. He lives in a state of reminiscence.

The following account is that of a patient who showed this condition. He was a stoker, aged about 45, and he was admitted to Haslar on Nov. 6th, 1916. The few notes which he brought with him showed that he had been admitted to hospital in Bombay on Oct. 15th, 1916, and later to the 15th General Hospital at Alexandria. The notes stated that when he arrived at the latter place he was very anæmic and had œdema of the lower limbs as high up as the lumbar region, and that this condition had been present for six weeks. The urine showed degenerated hyaline and epithelial casts, but neither albumin nor blood was detected.

When he arrived at Haslar on Nov. 6th there was no œdema and the urine was normal. He was very weak and anæmic, but no disease was detected except some recent gouty arthritis of his left wrist. Gout was also detected in the right ear and in the great toe on the left side. The red cells numbered 4,650,000 and the leucocytes 10,000 per c.mm. Of the latter 52 per cent. were polymorphonuclear cells and 46 per cent. were lymphocytes. He was observed from the first to be rather dull mentally.

On Dec. 10th his temperature went up to 104° F. suddenly and malarial rings were found in his blood by Dr. P. Fildes. The attack rapidly subsided with the administration of quinine and on Dec. 14th he was transferred to the neurological department for further observation of his mental condition. For the notes already given I am indebted to Surgeon T. G. Gibson, R.N., under whose care the man had been.

In his story the patient told us that he was born on June 10th, 1866, that he lived at a certain address at Fulham, and that he had a daughter aged 12 years. He said also that he had seen his wife recently at the hospital. These statements it was not easy to disprove at the time, and indeed the idea of attempting to disprove them did not occur to us then. Later, however, when he told us that the year was 1899, that King Edward was reigning, and that the war was between England and some field force and had been going on for four years, it was evident that we were dealing with some serious form of amnesia.

The man was well nourished, but pale, and he looked a little simple. He spoke quietly and politely and said that, with the exception of the pain in his wrist, he felt quite well. He told us that he had suffered frequently from "intermittent fever" and that his last attack was about three months ago, when his temperature was 104°. He said that he was ill for a week.

He told us that he was for eight years on the active list and that he then became a labourer, implying that he had become a reservist and that he had been called up for the war. This was supported by the fact that he was wearing a well-grown moustache which he said he had let grow for some time. He said that he had not been in action. He did not know the name of the hospital, and his ideas about the war were hopelessly confused, but he was able to do sums well and he read intelligently. He constantly stroked his moustache and chin with his hand. He did not appear to be worried particularly about his loss of memory, but he recognised that matters were not as they should be. He kept to himself a good deal, but appeared to be quite happy and contented.

He remembered having been at Bombay but had no recollection of his illness there or of the swelling of his legs. He could not tell us anything about his voyage home or about Christmas a fortnight before. He stuck to his statement that King Edward was on the throne, but he could not give the name of the Queen or of the Premier. When he was at a loss for a reply he used to say that he did not "read the papers carefully enough for that." He knew that Lord Roberts was in command during the Boer War, and said that he expected that he was still "somewhere on the frontier," but he would not hazard which frontier he referred to. He knew where he had been to school, and said that he was in the sixth standard. He recalled that he had been engaged to be married for about a year. He knew all about the circumstances associated with the relief of Ladysmith, but he did not know the name of Sir George White, even when it was mentioned in conversation. He said that he was a bald man, and that he knew his photograph well. When he was reminded about the battle of Jutland and of the Falkland Islands he appeared to recall them, but he remembered nothing about them. For instance, he did not know between which peoples the battle of the Falkland Islands was fought, but he thought that "England was there." He remembered that the Boer War was between England and the South Africans, but he knew nothing at all about the Jutland battle, and when pressed for some information about this battle he said that it was at sea and in the air, between England on one side and some country whose name he could not remember on the other. He said further that it was a kind of bombardment, and that Lord French was in command there, just as he had been at the Falklands, "because they must have had some troops there." He remembered the Diamond Jubilee, and thought that it took place in 1887. Later on, when pressed for more information about the war, he said that it was between England and the Balkan States.

On examination his gait was seen to be normal and he had no tremors. The spleen was not palpable. His systolic blood pressure was 140 mm. Hg. He had no headache and the urine and viscera were normal. His weight was 9 st. 13 lb. There was no evidence of alcoholic excess, nor was there any reason to suspect it. His blood on Jan. 15th, 1917, contained 5,050,000 red cells and 10,300 leucocytes per c.mm., and of the latter 63 per cent. were polymorphonuclears and 34 per cent. small lymphocytes. The hæmoglobin content was 90 per cent.

Nothing abnormal was detected in the central nervous system with this important exception: he had a bilateral absence of his ankle-jerks. This was confirmed repeatedly at subsequent examinations. The calf-jerks were active. There was no history of sciatica, nor was there anything else found to point to a past neuritis.

The association of the mental condition with the absence of ankle-jerks clearly made it imperative to rule out dementia paralytica, in spite of the fact that he did not resemble a case of this disease. The Wassermann reaction in the serum and in the cerebro-spinal fluid was found to be negative by Dr. Fildes, and the cerebro-spinal fluid contained no cells.

On Jan. 20th his wife came to see him. She brought her step-daughter and two friends. Several letters written to her at the address at Fulham which was given to us by the patient had been returned to us and finally his correct address was obtained from the Admiralty. It was in Portsmouth, where he had lived for four years. His wife told us that she had not seen her husband for nearly four years, when he was last on leave. As far as she knew, his previous health had been good. He had done 18 years' active service and had commissioned the *Pyramus* at the onset of war. She thought that he was still in this ship and had been worried because she had not heard from him for some time. The last letter she had received was from the Sailors' Home at Bombay during November, 1916. She had no knowledge that he was sick. She said that he had been a labourer formerly and that she had been married for 21 years.

The man recognised his wife and friends, but was not able to join in the conversation as readily as they wished. He told them that he must have grown his moustache on his way home. He caused considerable surprise by solemnly announcing that Lord Roberts and General Buller were in command at the battle of the Falkland Islands. The following day, Jan. 21st, he recollected having seen his wife, but thought that she had brought with her his little girl. He was reminded that he lived at Portsmouth, but up to the last he said that he lived at Fulham and that he was going there on his discharge. He was discharged to his home on Jan. 22nd, 1917.

The wife's story is put in here so that the reader will be in possession of the actual facts of his personal history before he reads the short list of the man's answers to various questions which is appended. It was very evident, during daily conversation with the patient, that he was living through the period of the Boer War over again. His memory for past events was not perfect, but it was far better than that for events of the present time. In a few instances, such as that of the intravenous injection, his memory for events of the immediate past was completely in abeyance. However, when his mistakes were pointed out to him he would sometimes avoid repeating them the next day. In some cases, when he made correct replies to simple questions of fact, it is likely that he had been told the answers by the other patients.

Jan. 3rd, 1917.—What is the name of the King?—Edward or William
What is the name of the Prince of Wales?—George.
What year did you join the Service?—1899.
Who is head of the Army?—Lord Roberts or Lord Kitchener
When did the war start?—1890.
What month is it? (January.)—December.
What Queen is reigning?—Queen Victoria.
Who is Prince of Wales? Prince Edward.
Where does the King live in London?—Buckingham Palace.
How long have you been in hospital? (Two months.)—Ten days.
Who is head of the Navy?—Admiral Jellicoe.

What was the name of his ship?—*King Edward.*
Who married Lord Kitchener?—No one.
What is the name of Admiral Beatty's ship?—*King Edward.*
Have you been on the Reserve List?—Yes, after doing 12 years' service.
When did you rejoin?—At outset of war.
Where did you spend last Christmas?—Has no idea.
What ship did you travel home in? (*Britannic.*)—*Tyne.*
Where did you spend Christmas?—At home.
Have you ever been in a decorated ward?—Yes, in the present ward, but I do not know why it was decorated.

On Jan. 4th I asked him when he had last seen me, referring to his catechism of the 3rd. He hazarded, "The day before yesterday, in the ward, at 11 A.M.," but he did not know what we talked about. As a matter of fact, the interview was in Sister's cabin, and at 6 P.M.

On Jan. 5th, at 10 A.M., I gave him an intravenous injection of "914," with the idea of stopping future attacks of malaria. He had never had any injections previously. At 4 P.M. he had no recollection whatever of the injection, and when I asked him when he would like to commence his treatment, he said that he would leave all that to me.

The mental characteristics of Korsakow's psychosis are clearly portrayed in this patient. It was evident that the absence of ankle-jerks and the mental confusion must be associated if it was possible to do so, and it was fairly clear that the abnormality of the reflexes was due to a peripheral neuritis, although no other sign of neuritis was present. What was the cause of the neuritis? There was nothing to suggest alcoholism as the cause. The only facts which we possessed were that he had gout, and that he had a proved attack of malaria while under observation. There was no reason to think that his gout was the cause of the neuritis. On the other hand, peripheral neuritis has been noted in malaria not infrequently, and Manson remarks in his book that loss of memory, partial or complete, appears to be a common accompaniment of peripheral neuritis of malarial origin. The illness from which the man suffered in Bombay, when his lower limbs were swollen, may have been beri-beri, in which neuritis is common enough, or it may have been malarial nephritis. It is by no means certain, however, that nephritis existed at all. We could not ascertain what this illness was, but in view of the fact that he had malaria (and probably it was not his first attack) it seems not unreasonable to ascribe his polyneuritis and the characteristic loss of memory to the disease described by Korsakow.

THE TREATMENT OF DIABETES MELLITUS.

BY R. T. WILLIAMSON, M.D. LOND., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY.

THE following is a brief sketch of the line of treatment which I have carried out with much success in many cases of diabetes mellitus during the last three years. Recently many new methods of treatment have been published, some of which are of distinct service. Certain of these methods have, however, disadvantages, and are occasionally followed by unpleasant symptoms. The line of treatment briefly sketched in this article will, I think, be found free from risk if carried out in the class of cases indicated. (To limit the length of this article many of the details of the treatment have been omitted.)

A routine examination of the patient is first made, complications noted, and the abnormalities of the urine determined. When certain complications (affections of the lungs, heart and kidneys, &c.) are detected a special form of treatment may be required and a rigid diabetic diet may not be desirable. Such cases will not be considered in this article.

When the case is one of diabetes without these complications a diabetic diet will be usually suitable. But the form of the disease must first be determined. When the urine gives persistently a claret colouration with perchloride of iron, and if this is not due to drugs, and if other indications of decided acidosis can be detected, the case requires very careful and special treatment; these cases will be briefly considered at the end of this article.

If, then, no complications can be detected which require a special form of treatment, and if the urine should give no reaction with perchloride of iron, and no other signs of decided acidosis can be detected, the following course of treatment may then be carried out.

Course of Treatment.

I. The patient is first placed on Diet I.—an ordinary rigid diabetic diet, but with the addition of 3 oz. of white bread *daily*.

II. If the glycosuria is not checked in a short time (few days) the white bread is promptly replaced by a pure diabetic bread (free from starch, or only containing the smallest amount thereof), such as biogene bread and ponos biscuits, protein bread, &c.[1]—Diet II.

III. If this fails after a fair trial of 10 or 14 days the following Diet III. is often successful if the patient is able to rest at home on a sofa for a short time.

For *one week* only food is taken in small quantities every 2 hours from 8 A.M. to 10 P.M. and the foods are eggs, milk, cream, custard, coffee, tea, and beef-tea. The following is the diet sheet:—

8 A.M.: Tea or coffee with one tablespoonful of cream. One egg (poached, buttered, or boiled).
10 A.M.: One glass of warm milk (10 oz.).
12 noon: Custard unsweetened (containing one egg and half a pint of milk).
2 P.M.: One glass of warm milk (10 oz.) or cream (1 oz.) in warm beef-tea (10 oz.).
4 P.M.: Tea with one tablespoonful of cream; one egg (poached, buttered, or boiled).
6 P.M.: Cream (1 oz.) in 10 oz. of warm beef-tea.
8 P.M.: One glass of warm milk (10 oz.).
10 P.M.: Cream (1 oz.) in warm beef-tea (10 oz.).

In this diet (or in the modification following) the patient receives daily 3 or 4 eggs, 2 to 3 oz. of cream, 2 pints of milk, in addition to tea and coffee and beef-tea.

The various small meals may be changed in order or altered if the patient desires. Thus, at 2 P.M. cream and beef-tea may be taken in place of milk, and a glass of milk at 6 P.M. in place of cream and beef-tea. At 8 P.M. one egg beaten up and added to 10 oz. of warm beef-tea may be taken in place of the glass of milk, or a poached egg and half a pint of beef-tea if the patient prefers. At 10 a glass of milk may be taken in place of cream and beef-tea. Also if the patient prefer an egg (poached or boiled) and a glass of milk may be taken at 12 in place of custard.

This diet often checks the glycosuria in a few days or by the end of the week. If the glycosuria is not checked by the end of the week the diet may be continued for a few days longer; but if it then fails it should be discontinued and the patient placed back on Diet II. for a few days. If the Diet III. has failed to check the glycosuria the patient may be placed on Diet IV. of casein or biogene and cream.

IV. Diet IV. of casein or biogene and cream.

The patient is given for seven or ten days a glass of casein or biogene and cream with water every two hours from 8 A.M. to 10 P.M. The casein preparation lait-proto No. 6 will probably be the most satisfactory for the majority of patients. A cup of tea or beef-tea, or both, may be also taken, if the patient desires, twice a day.

The mixture of casein and cream and water is prepared as follows: One tablespoonful of casein, or lait-proto No. 6[2]; one tablespoonful of cream; mix well in a tumbler with a spoon, then add hot water (or cold if preferred) very gradually, mixing well until the tumbler is full. (The fluid may be sweetened with saccharin, or flavoured with nutmeg if desired.)

In place of *one* tablespoonful of casein *two* tablespoonfuls of biogene[3] may be used if the patient does not like the taste of the casein. It should be mixed with *two* tablespoonfuls of cream and the water added as just described.

Many patients take the casein or biogene quite well, others find both unpalatable, and some cannot take either. Lait-proto No. 6 may be taken quite well when ordinary casein or biogene cannot be taken.

If we wish to avoid using diabetic breads instead of following the order just indicated the trial of Diet II. may be omitted, and if Diet I. fails Diet III. may be tried at once; or if the patient likes the taste of casein or biogene, and can be seen daily, Diet IV. may be tried before Diet III. (at once after Diet I.).

I have found Diet III. (eggs, cream, milk, beef-tea, &c., as indicated) of very great service; it is simple, palatable, and often very successful. It can be taken by nearly all patients and it is less expensive than diabetic food. It can be usually taken quite well by patients who cannot take casein or biogene. It is very useful in the case of diabetic

[1] See article by the writer on Diabetic Bread Substitutes, Brit. Med. Jour., Dec. 23rd, 1916.
[2] Can be obtained from Casein, Ltd., Sheepstone-lane, Battersea, London, S.W.
[3] Can be obtained from Messrs. Callard and Co., 74, Regent-street, London, W.

children. It is often very successful both in mild cases and cases of medium severity, and sometimes in severe cases. In some cases, like all other treatment, it fails. It often removes the glycosuria promptly in a few days or a week, though an ordinary rigid diabetic diet had previously failed. After taking this diet for seven or ten days often the patient may then take ordinary rigid diet for a long period without glycosuria returning, though previously on such a diet the glycosuria had continued. Probably it is not so often successful as the treatment with casein or biogene, but if it fails the latter treatment may then be tried, or a combination of the two methods may be tried. Diet III. or IV. should be continued for seven or ten days only. They are to be regarded as methods of dietetic treatment which are usually much more successful than an ordinary rigid diabetic diet in removing the glycosuria temporarily, and the after-effects probably continue longer. If later the sugar returns in the urine the methods may be repeated. Diet IV. may be successful when Diets II. and III. have failed. In a few severe cases with persistent diacetic acid reaction in the urine Diet III. or IV. removes the diacetic acid as well as the sugar, but they are not always suitable in such cases.

After Diet III. or IV. has been tried for seven or ten days the patient is placed back on Diet II. if the glycosuria continues. If the glycosuria has been checked, then the Diet III. or IV. is gradually changed. One ponos biscuit is allowed at 8 A.M. and 4 P.M. with the egg and tea. One or two days later bacon and green vegetables and custard are allowed at 1, in place of the meals at 12 and 2, and later Diet V. and then Diet II. are allowed.

Of course, the Diets III. and IV. will not be successful in all cases, but they are always worthy of a careful trial, except when the urine persistently gives a marked claret colouration with perchloride of iron. In these cases caution is necessary, and sometimes Diets III. and IV. are not advisable.

V. If all the diets already described have failed to check the glycosuria, then for a short time a diet of suitable vegetables, eggs, and fatty foods may be tried. (Diet V.)

Breakfast: Coffee (or tea) with cream; eggs (buttered, poached, or boiled), or tomatoes or mushrooms; suitable diabetic bread or biscuits; butter. *Dinner*: Bacon cooked in any way. Any of the following vegetables: cabbage, cauliflower, Brussels sprouts, turnips, French beans, spinach, broccoli, boiled walnuts, asparagus, vegetable marrow, tomatoes, mushrooms, salad, lettuce, cucumber, watercress, celery, radishes. Custard. Suitable diabetic biscuits or bread. *Tea or evening meal*: Tea and cream; eggs (buttered, poached, or boiled); or Welsh rarebit, cheese; or salad, lettuce, cucumber, mushrooms, tomatoes, boiled egg and spinach, watercress; suitable diabetic bread; butter.

Or the following diet may be tried for a short time:—

Breakfast: Tea or coffee with cream; one egg and tomatoes or mushrooms or spinach; also one ponos biscuit or other similar biscuit. *At 11 a.m.*: Two tablespoonfuls of cream in half a pint of warm beef-tea. *Dinner (12.30 or 1)*: Beef or tomato soup or one sardine and one ponos biscuit. Afterwards one or more of the following vegetables: Cabbage, cauliflower, brussels sprouts, vegetable marrow, broccoli (curly green), boiled celery, asparagus, French beans, turnips, tomatoes, mushrooms, boiled walnuts, Brazil nuts sliced and fried in butter. Custard; stewed rhubarb, gooseberries, or cranberries with cream. *Tea (4 to 5)*: Tea with cream, tomatoes or asparagus or celery or mushrooms, lettuce, salad, cucumber, jelly; one ponos biscuit. *Supper*: Beef-tea and cream (as at 11).

VI. If these diets fail to check the glycosuria then drugs may be tried. The drugs which I have found most useful are: sodium salicylate, aspirin, and salicylate of quinine These drugs may be given along with Diet II. or I. or V. I have been able to *demonstrate clearly*[4] the distinct effect of sodium salicylate and of aspirin in diminishing the glycosuria in certain cases of the milder forms of diabetes, and also in cases of medium severity. Some patients take sodium salicylate better, others aspirin.

The dose of these drugs has usually to be increased to 15 gr. (or more) four times a day before definite effects are obtained, and a careful watch should be kept for toxic symptoms. It is better to use the *natural* salicylate. In certain cases salicylate of quinine, gr. 3 or 4 or more, three or four times a day has appeared to be of distinct service, though I have not been able to clearly demonstrate this by careful hospital observations as in the case of the two drugs just named.

VII. Fast days are sometimes of service. On these days the patient fasts, and takes only tea or coffee, beef-tea or whisky-and-soda several times and no other food. In the less severe cases the glycosuria ceases on these days, but it often returns in a day or two. It may, however, not return for many days, and occasionally for a considerable time it is much less than before the fast days. But so very often I have found the results of little permanent value. A fast day once a week is useful in some cases, but I much prefer the treatment with the two-hourly fluid diets III. and IV., described in this article. I also prefer these diets to the more prolonged fasting which is being so frequently carried out.

When the patient suffers from insomnia or marked neurasthenia bromide of potassium (gr. 30 at night, or 30 early in the evening and 30 late at night) is suitable. Overwork, mental strain, and worry often increase the glycosuria, and should be avoided as much as possible.

If none of these diets or treatments check the glycosuria, then we must be content if we can diminish it by the various treatments described. After a time it is well to allow a small amount of white bread or milk, or both, especially if the urine should give a persistent reaction with perchloride of iron.

In some cases the most careful treatment fails; in others it is successful for a shorter or longer period and then fails. But in some cases it is successful for many years, or even to the end of life.

If we have checked the glycosuria by diet or drugs, then Diet II. may be allowed, and later Diet I. Still later more white bread is cautiously allowed, and then other starchy carbohydrates, if no glycosuria returns. But it is always advisable permanently to forbid sugar and sweet foods containing sugar. The urine should be watched and the diet made more rigid if glycosuria returns, and less rigid when the glycosuria ceases. In this way it is possible in some cases to keep the glycosuria in check for many years, or occasionally until the patient reaches advanced age and dies of some other disease.

Treatment of Cases with Acidosis.

When the urine persistently gives a deep claret colouration with perchloride of iron and other signs of acidosis are noted the outlook is unsatisfactory and very cautious treatment is desirable. In spite of continued treatment such cases frequently advance to diabetic coma. But sometimes by careful treatment this is checked for a long time, and by treatment the perchloride of iron reaction may disappear and sometimes the sugar also, at least temporarily.

The perchloride of iron reaction and other signs of acidosis may disappear in some cases when carbohydrates (3 oz. of white bread daily and three glasses of milk daily) are added to the rigid diabetic diet. In many cases after aperients the perchloride of iron reaction ceases for a short time. Heavy oxide of magnesia, gr. 60 or more at night, is a very suitable aperient, or gr. 30 three times a day in a little milk half an hour after meals. After calomel, gr. 1, three times a day and after treatment by an oatmeal diet (oatmeal porridge and milk three times a day) for two or three days the perchloride reaction may cease, and also after the two-hourly diet with eggs, cream, and milk, Diet III., or after the diet with casein and cream, Diet IV. After these two Diets III. or IV. I have seen both the glycosuria and diacetic acid reaction to cease in some cases, but in many cases both diets fail.

Diets III. and IV. are not suitable in some of the most severe cases of diabetes with persistent diacetic acid reaction in the urine. In such cases I hesitate to advise them, but even in a few of these cases I have obtained excellent results temporarily, especially with Diet III., and the urine has become free from both sugar and diacetic acid. In many of these cases both Diets III. and IV. fail, and they are not advisable in many of the very advanced cases. If tried in these cases with persistent acidosis Diet III. is preferable to Diet IV. and may be given in many of the less severe cases. When Diet III. or IV. is tried I often allow in addition for the first two days only a *small* amount of oatmeal porridge twice a day.

[4] See the writer's articles on the Treatment of Glycosuria and Diabetes Mellitus with Sodium Salicylate, Brit. Med. Jour., March 30th, 1901; with Aspirin, ibid., Dec. 27th, 1902; Treatment with both Drugs, Med. Chron., May, 1906, and Practitioner July, 1907.

It is curious that when the sugar excretion cannot be checked by the casein treatment or by Diet III. in these severe forms of diabetes with acidosis, in some cases the diacetic acid disappears from the urine, whilst in others it remains much the same. In a few cases the sugar excretion is arrested by the casein treatment, but the diacetic acid remains in the urine.

To summarise briefly, we may say that in these cases with persistent acidosis the ordinary rigid diabetic diet is not suitable. A small amount of carbohydrate (3 oz. of white bread daily and three glasses of milk) should be added to the rigid diet, the meat should be restricted; fatty food and green vegetables are very suitable. The bowels should be kept quite regular. Citrate of soda 30 gr., increased to 60 gr. or more, three or four times a day, and 60 gr. of bicarbonate of soda at night, in soda-water or milk, are of service, and larger doses may be given. Alcohol (whisky or brandy) is probably of service.

In course of time usually cases of severe diabetes with marked and persistent acidosis which cannot be arrested gradually advance to diabetic coma. Severe constipation, physical overstrain, and mental shock or anxiety are all very liable to excite coma in these cases, and hence they should be carefully guarded against. If the diacetic acid and other signs of acidosis cease then the outlook is, of course, much more satisfactory. Then the treatment and Diets I. to IV. already described may be tried strictly, as in cases of diabetes without acidosis.

In this sketch of the line of treatment I have carried out in the last few years, I have not referred to many methods which have been recently much discussed and recommended. Also I have not given many details of treatment.[5] I have tried to indicate only, and as briefly as possible, the line of treatment which I have carried out myself and found most useful.

The treatment of diabetes is now much more satisfactory than it was a few years ago, and if carried out carefully and continuously, except in cases with persistent acidosis, and even occasionally in these cases, the results are often excellent. By one of the Diets I., II., III., or IV., or by drug treatment, &c., the glycosuria may often be arrested, at least temporarily, and having been once arrested often it can be kept in check more or less, or kept small for many years, or even in some cases permanently.

NOTE ON A CASE WITH SEVERE GASTRIC CRISES TREATED BY AACHEN METHODS.

BY REGINALD HAYES, L.R.C.P., M.R.C.S. ENG.

IN all cases of syphilis of the nervous system it is eminently advisable that prolonged inunction should be tried. It is best tolerated when given with the sulphur water, internally and externally, as at Aachen. If scrupulous attention be paid to detail in the administration, no ill effects can follow, and it is as a rule well borne. The method in every particular has now for some years been carried out in this country, where the patient has the added advantage of keeping in close touch with his usual medical attendant. The following are the notes of a case kindly referred to me by Mr. Richard Lake.

The patient, a middle-aged man, complained that for some weeks he had suffered, after the slightest exertion, from burning pains in the shins. The condition was getting worse, and he requested me to give him a course of Aachen treatment, as similar trouble in the past had disappeared after a visit to that spa. Having only recently become aware even that any attempt was being made to reproduce the Aachen routine in this country, he was sceptical as to the feasibility of carrying out the exact technique, but was willing to give the time necessary for a thorough trial. He was well nourished. Refused a Wassermann test. Urine normal. Knee, ankle, and wrist reflexes absent. Pupils presented Argyll Robertson phenomenon. Motor: Walked cautiously—slight Rombergism, otherwise normal. Sensory: Areas of anæsthesia existed over trunk and limbs. There was some deficiency in motor power of bladder and rectum.

History.—About 20 years ago he acquired syphilis; rash marked; glands in groin small. Treatment: Hutchinson's pills for six months, when he was pronounced cured and resumed his normal life. He had no further symptoms until the end of 1902 when he found difficulty in singing, choked without any obvious cause, and was troubled with giddiness. In 1903 he tried a holiday for some months, but on his return felt no better, was very depressed, and became unsteady on his legs from time to time, even falling down. He consulted Dr. Risien Russell, who diagnosed tabes and ordered rest in bed and general massage, and inunction of mercury in axilla and groins daily for a few weeks. This, in addition to KI internally, was persevered with for six weeks. The patient felt better, and went away to the country for three months. In May, 1904, he had a series of bad gastric crises, during which he nearly died. Morphia and ether injections and feeding per rectum became necessary. After this he was confined a great deal to bed, and in the intervals could only be said to "crawl about." He was then advised to try inunction at Aachen. Going there in January, 1905, he was placed under the care of a physician there, who confirmed the diagnosis of tabes, and on his advice the patient was submitted to 76 rubbings. Shortly afterwards he had another bad attack of gastric crises and heart failure. Again he nearly died, requiring morphia and ether injections and rectal feeding. He improved, but after 32 more rubbings had a further alarming crisis. In July, still another crisis occurred, necessitating rectal feeding, &c., as before. Subsequently he had at Aachen, in October to November, 50 rubbings: 1906, 2 visits, 60 and 50 rubbings; 1907, 1 visit, 40 rubbings; 1908, 2 visits, 40 rubbings each time; 1909, 1 visit, 40 rubbings; 1910 to 1914 inclusive, an annual visit, 40 rubbings on each occasion. In 1915, no treatment; a Wassermann test done in the winter was negative.

Recently, when he consulted me, the complaint was that he felt he was going back, as shown by burning feelings in the shins after quite a short walk, and a tendency to giddiness after sitting down. I advised 40 rubbings with full Aachen technique. These were carried out at his own house—a plan of great advantage in cases of this type. As his wife had accompanied him during his many visits to Germany there was no necessity for explanation or excuse. A few weeks afterwards his discomfort had gone and he had attained his usual level of health. He expressed surprise that the technique with which he had become so familiar at Aachen could be reproduced in its entirety in London.

This patient paid 13 visits to Aachen and underwent 698 rubbings. It was not until 108 inunctions had been given that definite improvement was noted and the crises ceased. He was never salivated, nor did he suffer from gingivitis. His weight is now normal for his height, and has increased 3 st. since beginning treatment. His capacity for work and play is now considerable.

Cornwall-gardens, S.W.

[5] In my article on Diabetes in the "Encyclopædia Medica," I have given details respecting diet, drugs, mode of life, &c.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ELECTRO-THERAPEUTICS.

New Method of Bullet Extraction.—Heliotherapy and X Rays in the Treatment of Surgical Tuberculosis.

A MEETING of this section was held on April 20th, Dr. G. HARRISON ORTON, the President, being in the chair.

Dr. A. E. BARCLAY (Manchester) communicated through Dr R. KNOX a further note on the New Method of Bullet Extraction, of which he gave a recent description—namely, by a specially designed, electrically connected pair of forceps to which a fluorescent screen was attached. Dr. Barclay said it was difficult, in the stress of war work, to assess the facts, but the instrument, when perfected, performed the extractions well and with but slight damage to the tissues. But there were limitations: (1) It could only be used in the direct line of the X rays; (2) it required experience and knowledge of X ray shadows to perform extractions safely and quickly; (3) the dangers due to prolonged exposures to X rays were not appreciated by many Army X-ray workers who had not had experience of X ray therapeutics, hence such an instrument was not a safe one in their hands. Dr. Barclay's own experience with the apparatus had been successful. He did not advocate the use of the apparatus generally in large military hospitals until the times were less strenuous and a proper study could be given to it.

Mr. H J. GAUVAIN read a communication entitled "Heliotherapy and X rays in the Treatment of Surgical Tuberculosis." He first outlined the modern conception of surgical tuberculosis. The disease was a generalised one with local manifestations requiring very varied methods of treatment. The question of the "soil" of the patient was of great importance, and every endeavour should be made to improve the resistance of the patient, so that his natural defences should be strengthened and fortified, in order to put him in the best position to overcome the disease. Sunlight, he said, acted in two ways: (1) directly on local lesions; and (2) indirectly by inducing favourable constitutional effects and benefiting deep lesions. Direct action was beneficial (1) by the bactericidal effect of ultra-violet light on superficial lesions; and (2) by the inflammatory response which exposure provoked. This inflammatory response must be controlled, as, if unchecked, harmful and necrotic effects would be produced. Evidence was cited to show that the ultra-violet light waves most nearly resembling those found in the solar spectrum were of the greatest value. Shorter waves might be injurious; in any case their beneficial action was not clearly ascertained and the danger of utilising artificial sources of light producing these short-waved rays was indicated. Until more was known of their action they should be filtered off by suitable methods of screening. All the beneficial effects were then obtained without exposing the patient to danger. Exposure should always be carefully graduated. The direct action of ultra-violet radiation was limited to superficial lesions owing to the very small penetrating powers these rays possessed. Their penetration might be increased by rendering the skin anæmic, but even under the most favourable circumstances their penetrating power was not great. The greatest value of heliotherapy was associated with its remote effects, and light treatment for this purpose had not attracted the attention desirable. The remote effects, Mr. Gauvain said, appeared to depend upon the ability of the skin of the exposed patient to pigment adequately. This pigmentation was produced by ultra-violet radiation, but was also dependent upon some factor inherent in the patient and varying widely in degree. Equal exposure in different patients would induce very varying degrees of pigmentation and some patients would not pigment at all. In these the direct effects of light therapy were produced as easily as in pigmenting patients, but the remote effects were unobtainable. Sandy and red-haired patients attacked by tuberculous disease often had little pigmenting power. Their skins would freckle, but would often not pigment except with great difficulty. Freckling was undesirable, as its formation was not associated with any improvement. He had noted that failure to produce pigmentation was often associated with latent tuberculosis, even though there were no clinical signs of active tuberculous disease. Subsequent development and successful treatment of a hitherto unsuspected lesion were frequently associated with acquirement of pigmenting power, which synchronised with rapid improvement, both general and local. This observation was, therefore, of great prognostic value and corresponded to a somewhat remarkable extent with observations made on the prognostic significance of the von Pirquet reaction. Mr. Gauvain submitted a theory that the action of sunlight on man was to some extent on parallel lines with its action on plant life. In green plants, the actinic rays stimulated growth, but it was the illuminating rays which, viâ the transforming medium of the chlorophyll pigment, effected assimilation. In man, while the ultra-violet rays induced pigment formation, it was probable that the remote benefits produced by sun treatment might be largely ascribed to the illuminating rays acting through the medium of the pigment. There was much clinical evidence to support this, and he had designed experiments which, it was hoped, would further elucidate this important question. It was well known that the long-waved rays had very great penetrative power, but in the absence of pigmentation they appeared to have little influence on surgical tuberculosis. The physiological properties of these rays demanded careful investigation. Pigmentation had an important protective rôle. Once established prolonged exposure could be tolerated. Pigmented patients suffered little from excessive heat or cold. The effects of light treatment on pigmented patients were discussed. The author considered that insolation should be regarded as an adjuvant method of treatment which accelerated and consolidated the cure. It increased the patient's power of resistance. It had a very marked tonic and pyschological effect. It speeded up metabolic activity. Oxygenation was increased but the respiration rate diminished, though the amplitude of individual respirations was greater. There was increased elimination which was of value in the discharge of toxic products. The effect on the blood stream was profound and increased formation of red cells, increasing hæmoglobin and leucocytosis had all been noted. On even the deepest lesions marked improvement had been recorded. Sinuses frequently dried up where other methods of healing failed. Sequestra were often painlessly extruded. The resulting cicatrices were often almost invisible and keloidal scars almost unknown. Fibrous tissue generally when not needed was absorbed, and this property was of a special value in restoring mobility to healed joint lesions long fixed by fibrous ankylosis. Viewed as a whole, patients did much better in the summer when exposed to sun treatment than in the winter. In the after-care of patients occasional courses of insolation should be prescribed. Heliotherapy was undoubtedly of great benefit in consolidating a cure and reducing the danger of a relapse. Heliotherapy in surgical tuberculosis was, in the speaker's opinion, contra-indicated: (*a*) for the remote effects in patients who have no pigmenting power; (*b*) in amyloid disease; (*c*) in certain acutely septic cases until improvement by other means has been first effected. The indications for X ray treatment in surgical tuberculosis were next considered. The importance of careful technique and selection of suitable cases was emphasised. Iselin's table of tolerance was always observed. The author summarised his observations as follows: (1) X ray treatment was of great help in certain local conditions, and synchronous with their amelioration general improvement is often maintained; (2) its value and applicability varied in different regions of the body; (3) it was useful in certain cases of sinus formation and in the treatment of many tuberculous ulcers, leaving supple, non-keloidal scars; (4) it was especially valuable in certain cases of tuberculous adenitis, but the greatest benefit might usually be only anticipated if associated with other methods of treatment, and it was particularly useful where there was much periglandular infiltration and here formed a useful treatment preliminary to extirpation or aspiration, aspiration together with the use of modifying fluids to be preferred to extirpation, when possible; (5) it was most safely applied in tuberculosis occurring in the neck, elbow-joint, and knee-joint; (6) it was apparently helpful in certain cases of caseous abscess formation; (7) it was both unnecessary and undesirable in the treatment of abscesses which can be easily aspirated, and should not be used with abscesses which leak from an aspiration puncture which has resulted from faulty technique; (8) it was dangerous in abdominal tuberculosis and apparently of little value in costal tuberculosis; (9) possible untoward effects as the result of careless technique or too frequent exposure should always be borne in mind and guarded against; and (10) while of great assistance in the treatment of specific lesions, other aids to treatment were often required and should be associated. The paper was illustrated by numerous lantern slides and autochromes, one of the latter demonstrating the extrusion of sequestra during insolation.

A discussion followed.

BRITISH SCIENCE GUILD.—**The eleventh annual** meeting will be held at the Mansion House on Monday next, April 30th, at 4 P.M., when Lord Sydenham will give an address on National Reconstruction.

TAVISTOCK (DEVON) URBAN COUNCIL AND "MEDICAL ETIQUETTE."—At the last meeting of the Tavistock Urban Council a letter was read from the Local Government Board in reference to the free distribution of disinfectants. The medical officer of health said he was afraid that no disinfectants would be forthcoming for the poor residents of Tavistock, because the medical officer of health was required to have a note from the medical attendant stating that a disinfectant was required, and the medical men in the town "did not, and would not, give these notes"; he added that he doubted whether any other urban district demanded these notes. A member remarked that it was some "imaginary question of medical etiquette," and he proposed that the council inform the medical practitioners of Tavistock that these notes should be adopted, and this course of action was decided upon.

Reviews and Notices of Books.

Military Surgery. By DUNLAP PEARCE PENHALLOW, S.B., M.D. Harvard, Chief Surgeon, American Women's War Hospital, Paignton, England; Captain, Medical Corps, Massachusetts National Guard; &c. With an Introduction by Sir ALFRED KEOGH, K.C.B., Director-General, Army Medical Service. With original drawings by the Author. London: Henry Frowde and Hodder and Stoughton. 1916. Pp. 432. Price 15*s.* net.

THE advent of the war has introduced many a surgeon, hitherto accustomed only to the injuries encountered in civil practice, to conditions almost unknown to him, not only in degree but in kind. The variety and severity of the lesions produced in the present conflict have never been equalled in previous wars. Fresh problems have presented themselves, at the solution of which hundreds of surgeons are working, many of them under difficulties inherent to war conditions, and there is little surprising in the fact that they have not all come to the same conclusions. Unanimity under such conditions would not be a sign of healthy progress.

We therefore owe a debt to those surgeons who, possessing a wide experience of the surgery of war, give the results of their labours to the world. Dr. Penhallow's position as chief surgeon to the American Women's Hospital in this country has given him ample opportunities of forming considered opinions, and in the volume before us he has recorded his conclusions regarding the best methods of treating wounds met with in the present war.

The work is fully illustrated with drawings, photographs, and skiagrams, and the descriptions of treatment are sufficiently detailed to enable those with but little experience to follow them. The varieties of projectiles are described; the infection of wounds is discussed in one chapter, gunshot wounds of soft parts are dealt with, and in other chapters the treatment of wounds of special structures, such as bones, joints, nerves, and blood-vessels; such conditions as shell shock, gas poisoning, and trench foot also are considered.

The importance of his views is much increased by the impression which the reader gains from Dr. Penhallow's book of an extensive acquaintance with the writings of others in this domain of surgery, and of familiarity with the literature of the surgery of the wars of the past. And this is well since on nearly every page matters arise in which there is room for discussion, and it will hardly be until the war is over, if then, that surgeons will be in a position to state with certainty what is the best practice to follow. No surgeon at present sees the whole of the treatment of any long case; he may see it at an emergency clearing station or at a base hospital, or it may come under his care at a hospital in this country, but he will not see it from start to finish unless its course is brief indeed. Time alone will give a clearer vision of what is the best treatment in prolonged and difficult cases.

Dr. Penhallow's book may be regarded as a serious contribution to this clearer vision, and it will prove of special value to the less experienced military surgeon, who will find it a trustworthy guide in carrying out his duties.

Stati Ansiosi nelle Malattie Mentali. By Dr. GASPARE BERGONZOLI, Superintendent of the Provincial Asylum at Pavia. Voghera: Via Cavour 12. Pp. 186.—In every epoch and from very remote times the symptom-group of anxiety and grief has been noticed in various organic and psychical maladies, particularly in those where, by its frequency and importance, it presents itself in a striking fashion. The author, therefore, in this monograph draws attention to those forms of psychosis where anxiety occupies the principal part in the clinical picture of the disease so as to constitute a special variety, or other forms in which it constitutes an important symptom, yet without changing materially the physiognomy of the psychosis. After a brief historical review, the author describes a typical condition of "pantophobia" accompanied by symptoms of organic disturbance, of sensation, the circulatory and respiratory systems, &c., and then sketches phenomena of anxiety in organic diseases and psychoneurosis. The bulk of the work, however, consists in a careful and elaborate description of "anxiety psychosis" in its various aspects and conditions of depression and obsession, followed by a chapter in which nine cases are portrayed with full clinical details. The etiology and pathology of the condition are then discussed, and a separate chapter is devoted to its diagnosis, prognosis, and treatment, the author having obtained the best results from the administration of opium. In an extensive bibliography of 356 items we only notice the names of Arnold, G. Beard, Crichton, Robertson, S. T. Rucker, and Arthur Townsend among British and American observers, but the monograph is very complete and may be considered to be the last word on anxiety neurosis at the hands of our distinguished Italian colleague.

Text-book of Meat Hygiene. By RICHARD EDELMANN, Ph.D. Third revised edition and authorised translation revised for America by JOHN R. MOHLER, A.M., V.M.D.; and ADOLPH EICHHORN, D.V.S. With 161 illustrations and five coloured plates. London: J. and A. Churchill. 1916. Pp. 452. Price 21*s.* net.—This third English edition of a well-known work has been revised in several important directions. Previously abundant references to German conditions, especially on the subject of the disposition of diseased animals, have now been replaced by exclusive reference to the rules and regulations governing the meat inspection of the United States Bureau of Animal Industry. Further, since the publication of the second edition, reviewed in our columns of March 29th, 1913, alterations have been made in the regulations made by the United States, and the new régime forms an important portion of the subject-matter of this edition. The new orders refer chiefly to the disposition of carcasses and to the recent measures of control adopted over the importation of meat. The advanced attitude of a country like the United States in the important matter of meat hygiene is well worth studying, and apart from the practical chapters, which are of direct interest to the meat inspector, this book may safely be taken to represent modern views upon the whole subject.

Elementary Qualitative Analysis. By BENTON DALES, Ph.D., and OSCAR LEONARD BARNEBEY, Ph.D. New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1916. Pp. 205. Price 5*s.* 6*d.* net.—Laboratory guides in qualitative analysis are fairly numerous, and it is only occasionally that an author is found to introduce any novel features. This work presents, however, a few important departures which may justify its appearance. The introductory chapters on the principles underlying qualitative analysis give a clear account of chemical changes, precipitation, the evolution of gases, and the like interpreted in the light of modern knowledge. Dissociation into ions, reversible reactions, and the laws of equilibrium are discussed in a clear manner. Coming to the group system, a new scheme is given for the detection of acids which facilitates this process, and the authors prefer to discover the acids first, as then, rightly enough, "the procedure for the bases can usually be abbreviated." The book reveals an experience of qualitative testing, coupled with a systematic presentation of facts, which should help to put the student in right paths.

Text-book of Elementary Chemistry. By F. MOLLWO PERKIN, Ph.D., F.I.C., F.C.S.; and ELEANOR M. JAGGERS. London: Constable and Co., Limited. 1916. Pp. 384. Price 3*s.* 6*d.* net.—Chemistry in its applications to some of life's affairs is illustrated in simple terms in this book. Only familiar things such as the air, water, chalk, sulphur, and certain metals are dealt with, but at the end of the story there appears a chapter on technical processes, illustrating the chemical principles underlying the manufacture of well-known commercial products, as the aniline dyes, soap, glycerine, oils, and so forth. It is doubtful whether the section on vegetable oils and animal fats will be clearly understood by the general reader when he has to face such terms as "monobasic" "glycerides" and "hydroxyls." There is a curious slip on p. 166, where the authors state that "water is temporarily hard when boiling will not alter its hardness." On p. 158 the student is asked to blow gently into a flask in which the loss of carbonic acid gas, by evolution from a carbonate, is being determined; it would clearly be more accurate to withdraw the residual carbonic acid gas by sucking it out, since the breath would deposit moisture, and so to an extent disturb the calculation. The educational aim of the book is praiseworthy.

THE LANCET.

LONDON: SATURDAY, APRIL 28, 1917.

The Calling Up of Medical Men of Military Age.

THE attacks made by German submarines upon our hospital ships have determined the Government to take a step which as a matter of course must have been present to their minds for some time. It has been decided to call up every medical man of military age, and every practitioner in this category will become available for the Army by May 6th. The fact that the Germans had attacked relentlessly our hospital ships during the past fortnight was announced by Mr. BONAR LAW in the House of Commons last week; before the official statement, tragedies of the kind to which he alluded had received public announcement, and in the interval others have occurred with a sad loss of medical personnel. The torpedoing of the hospital ships made clear the necessity of establishing a large number of new hospitals overseas, so that the provision abroad of the suitable hospital personnel should enable the number of wounded returned home to be sensibly decreased. Accordingly, Lord DERBY has issued a letter from the War Office to the medical practitioners of the country explaining the situation clearly, and indicating that the extensive withdrawal from their practices in the country of medical men of military age must be answered by all who remain with offers to act in a general scheme of substitution, whereby the gaps in the home medical service may be filled as completely as is feasible.

The decision of the Government to call up medical men of military age will not come as any surprise to our readers, who have been kept aware of the direction which events were taking. It has for some time been obvious that the demands of the War Office, which must be taken to be identical with those of the Army, for more medical officers could only with difficulty be met under any voluntary system. Under that system the country has received, and is receiving, the devoted assistance of thousands of medical men who have neither given heed to their financial present or their professional future, nor to the personal dangers of the medical soldier, as revealed in the ever-growing lists of our dead and wounded colleagues. The Central Medical War Committee, the Scottish Medical Service Emergency Committee, and the Committee of Reference of the English Royal Colleges have all worked unceasingly to supply the War Office with medical officers, while watching over the interests of the civilian community at home, on whose maintained good health so much of our efficient conduct of the war necessarily depends. A large number of Local Medical War Committees have coöperated with the central bodies in recommending which of the practitioners in their localities should be taken and which should be left, and their opinions, often given in difficult and delicate situations, have, on occasion, been carefully revised by the central bodies, no pains being spared to balance the *pros* and *cons* and elicit the deciding factor in every instance. The deliberations of the Central Medical War Committee have been strengthened throughout by intimate relations with the Local Government Board and the National Insurance Commission so that individual exemptions of medical men by the statutory tribunal have been considered both on their own merits and in respect of any public claims. The result of all this hard and careful work, carried on from day to day over a period of 20 months, had begun to suggest that the voluntary reply of the medical profession had been given in entirety, and that further demands upon the practitioners of the country to take commissions would have to be based upon a scheme of general calling up of all those of military age, combined, it might well be, with modifications in the employment of medical officers whereby economy of material would be ensured. Just when affairs had reached this position came the unspeakable onslaughts by the German submarines upon the Red Cross ships, and the decision of the War Cabinet to call up at once under the Military Service Acts all medical men of military age followed immediately. Lord DERBY'S circular letter, which we print elsewhere, conveys the information to the medical profession in complimentary terms.

The onus of responsibility is now removed from all medical men of military age; they are called up, however, as a class and not as indistinctive citizens, and recent events have confirmed their central professional war committees in the resolve only to continue selecting doctors for military service if they are allowed to retain the decision how many and which individuals can be spared from civil work. To medical men above military age voluntary discretion remains, but in Lord DERBY'S letter the hope is expressed "that every doctor over military age will immediately offer his services to the Local Medical War Committee of his area as willing to undertake any substitution work within his capacity which would help to release any man of military age who cannot otherwise be spared." Acceptance of this invitation will be easy for some men and extremely difficult for others, the considerations ranging themselves under such headings as age, health, locality, and equipment, and requiring no further analysis to make their force apparent to medical readers. We trust earnestly, and we believe, that those whom the call to substituted service finds in positions where response has less difficulty, will coöperate quickly with the Local Medical War Committees as to the effective utilisation of their services. It is said of all voluntary systems that the willing men are those who make the greatest sacrifices, and with this our profession, which has borne so much during the war, must not be reproached. There is need for promptitude in the giving in of names at the local centres, for the organisation of the measures possible for maintaining essential medical services, while meeting the demands of the Army, cannot be of a simple nature. Every hour will probably be of value.

The Surgery of the Abdomen: The Lessons of War.

IN civil practice the surgery of the abdomen is of recent growth. It is well to remind ourselves of the time, not many decades ago, and therefore still within the memory of a large proportion of medical men in this country, when even the most experienced surgeon hesitated to open the abdominal cavity. Reference to text-books of surgery of 30 years ago will show that the surgeon then felt justified in washing and replacing a piece of bowel or other viscus protruding through an abdominal wound, or in tying the pedicle of a prolapsed spleen, but he did not venture to open the abdomen to examine the injury caused by accident or bullet. A generation has changed all that. The well-founded respect of the surgeon for the peritoneum has given place to the conviction that however great the risk he runs of setting up a septic peritonitis in opening the abdominal cavity, the risk is as nothing compared with the danger of leaving untouched a perforated viscus. The danger of infection from without is, under these circumstances, quite overshadowed by the danger of defilement from within, and the only course open to him is to explore the abdominal cavity and to close the wound in the viscus in order to limit the spread of the peritonitis which may already have started. If this is true in civil practice it applies doubly to wounds in war, where the abdominal injuries are far more numerous and usually more severe. The Lettsomian lectures on War Surgery of the Abdomen delivered by Colonel CUTHBERT WALLACE, consulting surgeon to the Army Medical Service, the concluding lecture of which appears in our present issue, and the analysis of abdominal surgery at a clearing station by Captain GERALD S. HUGHES, R.A.M.C., and Captain W. A. REES, R.A.M.C., record experience in dealing with the peritoneum resulting from many months' work in France. The value of these papers to the surgeon rests on the fact that the opinions expressed are based on large experience and reasoned analysis of results.

Under war conditions the precise nature of the fighting materially affects the methods of surgical treatment. Success in the treatment of abdominal wounds depends principally on the ability to operate before much time has elapsed after infliction of the injury. This condition is only granted when the hospital is within a short distance of the fighting line. Such proximity has been possible during the fighting in France ever since the rapid retreat and the advance of the first two months were succeeded by a fighting front remaining practically fixed, with the result that casualty clearing stations become as well suited for abdominal operations as any base hospital. Rushes of work there have been from time to time, and these are now occurring in several places on our front, but the pressure has in general not been such as to prevent the surgeon at the clearing station from performing abdominal section in all desirable cases. When advance becomes more rapid conditions will change: clearing stations will not be so close to the firing line, a longer time will elapse before the patients reach the hospital, while the pressure of work will diminish the time which can be devoted to each case. We may be sure that the utmost will be done to remedy these drawbacks; but clearly the statistics of a casualty clearing station in a fixed position and not overworked must compare favourably with another which is always on the move and almost overwhelmed with the number of urgent cases. The results obtained at the base hospital will vary, but in a different way: the base hospital receives those cases which have survived the shock of the injury and after elimination of all the more severe cases, for these will be already dead.

A perusal of the papers referred to leads to certain provisional conclusions. In the first place, it is clear that all abdominal cases, unless obviously moribund, should receive operative treatment, and this at the earliest possible moment after injury, provided that extreme shock is not present. Performance of abdominal section during severe shock can only serve to impair the little chance of life remaining to a wounded man. Within half an hour warmth usually removes much of the shock in all but the most severe cases, and the abdominal section can then be undertaken. Secondly, the operation itself must be performed with the utmost despatch, and the abdominal contents not brought out of the wound more than absolutely necessary. Large incisions are therefore indicated. The less the bowel is manipulated the better, but examination for perforations must be thorough, omitting no part of the abdominal contents where a wound is likely to be present. The recorded experience shows further that abdominal sections can be done when many of the arrangements provided in a civilian hospital are absent. It will, we think, still be possible, therefore, in the future, when the casualty clearing station is constantly on the move, for the abdomen to be opened whenever there is a clear hope of saving life by rapid operation. In this connexion the use of motor ambulances has helped by shortening greatly the time intervening between the infliction of the wound and the arrival of the patient in hospital. We have good reason to be proud of the abdominal surgery done in the casualty clearing stations, and feel assured that the work will be equally well done under the altering conditions.

THE Medical Research Committee understand that, owing to unavoidable delay at the printing offices, copies of the report upon soldiers returned as cases of "Disordered Action of the Heart" (D.A.H.) or "Valvular Disease of the Heart" (V.D.H.) have not been readily obtainable from H.M. Stationery Office. Copies are now, however, obtainable through any bookseller from H.M. Stationery Office, Kingsway, W.C. 2, at the price of 1s.

THE ADMISSION OF DEAF CANDIDATES TO THE C.M.B. EXAMINATION.—At a recent meeting of the Central Midwives Board a letter was considered from the lady superintendent of the Plaistow Maternity Charity inquiring whether a woman who was quite deaf, but was capable of understanding conversation by means of lip-reading, was eligible for admission to the Board's examination. The Board directed that the lady superintendent of the Plaistow Maternity Charity be informed that the woman about whom she inquired could not be admitted to the examination.

Annotations.

"Ne quid nimis."

THE NATIONAL FOOD-SUPPLY.

ACCORDING to the report of the Food Committee of the Royal Society, the consumption of bread in pre-war times by the population of the United Kingdom was 5¼ lb. per head per week. The Devonport allowance of 4 lb. represents a reduction of nearly 25 per cent. upon our previous habit. The reduction of 1–1¼ lb. of bread per head per week asked for by Lord Devonport should make no excessive demand upon the national self-control. We must, however, remember that physiology teaches that a further reduction in the national bread consumption will be dangerous, and the Government must strain every nerve to ensure that the bread-supply, *including all cereals*, is kept up to three-fourths of its pre-war value. The voluntary ration of bread and meat officially recommended to the nation by the Ministry of Food Control has now stood the test of ten weeks' trial, and the possibilities of the Devonport figures are generally recognised. If these figures—4 lb. bread and 2½ lb. of meat per head per week—are taken to represent distribution figures for the whole mixed population of men, women, and children, workers and non-workers counting alike as heads of the population, no apprehension need be felt as to keeping up the man-power of the nation, but to limit the worker to the 4 lb. bread ration must imperil his value. The German experience proves that some time may elapse before this happens, but the risk is one that should be avoided. Bread, by which all cereals as food is implied, is the worker's food which nothing can replace. The economy of bread is necessary by worker and non-worker alike in so far as our customary waste of bread must cease. It is imperative on all the sedentary classes in this country to get as far below the bread ration of the Ministry of Food Control as possible, for in this way the expiration of time at which the worker can return to the full bread ration will be assisted. The consumption of other cereals than wheat by those who can dispense with them is no true national economy. It should be, and probably is, the intention of the Government to make some statement on this vitally important matter to the public as soon as an accurate forecast can be arrived at as to the amount of cereals we have in hand. The country would also like to learn the views of the Royal Society, expressed through their Food Committee, for an authoritative statement would be very useful. Lord Devonport's statement in the House of Lords on Wednesday is satisfactory as indicating that the term of privation which should *now* begin will not last until the period of danger for our manhood efficiency.

KORSAKOW'S SYNDROME.

IN another column we publish a communication by Dr. Hildred Carlill, attached as neurologist to the Royal Naval Hospital at Haslar, on a case of Korsakow's psychosis in association with malaria, which draws attention to a curious and not yet fully understood condition. Mental symptoms associated with peripheral neuritis were often recorded by clinical investigators, notably by Dr. Allen Starr, of New York, before Korsakow, in 1887, described a syndrome subsequently called by his name on the suggestion of the late Professor Jolly, of Berlin. Korsakow's own title for it was "cerebropathia psychica toxæmica"—a cumbersome and not very informative term. It indicated, however, the toxic nature of the condition, which, as first described, was supposed to be characteristic of disturbance of the central nervous system of alcoholic origin, linked, in fact, to an actual and obvious peripheral neuritis. Hence it has been regarded by some as the expression, clinically, of a "central neuritis," and this, pathologically speaking, is probably not incorrect. Many cases have since been reported of Korsakow's syndrome apart from alcohol, and, indeed, apart from any evidence of polyneuritis. Oppenheim in one case could find no other cause for the symptoms than a continued use of pyramidon. Further, in not a few cases of alcoholism the mental picture is not comparable in any way to that of Korsakow's "polyneuritic psychosis." Dr. Carlill mentions its occurrence in typhoid fever, diabetes, arsenical poisoning, and malaria; almost any toxic or toxi-infective state may be supposed, in the presence of certain at present unknown factors, to bring it on. As the type of psychosis is, as a rule, peculiarly definite and clear-cut, its appearance in the course of widely differing toxæmias is one of the most interesting features of the condition. The megalomania of dementia paralytica is not more precise than the amnesia, paramnesia, and confabulation of Korsakow's symptom-complex. In the foreground of the clinical picture is the patient's Unmerkfähigkeit—his incapacity for retaining recent impressions. His retention of memories of recent events is incredibly fleeting: in a minute or less, sometimes, they have vanished. Arising in a sense from this, and no less characteristic, is the patient's confabulation or romancing, and he is often curiously euphoric or good-humoured in relating his fanciful tales. Hence, also, his illusions of memory and illusions of recognition—so-called paramnesia. He will believe that he has been out for a walk when he has never left his bed, and will proceed to describe with charming verisimilitude whom he met and what he saw during his constitutional. It is obvious, further, that another feature of his mental state is suggestibility; not only does he invent himself, but he believes the most improbable stories foisted on him by the observer. His judgment is badly at fault and his critical faculty in abeyance. Disorientation and confusion of recent and remote events, and absurd attempts to fill memory gaps and hiatuses, are well illustrated in the case recorded by Dr. Carlill. It has already been observed that polyneuritis is a frequent but not an integral part of the syndrome. Persistently absent Achillis-jerks may well represent an old neuritis; were they the expression of a recent neuritis probably other symptoms would be present with them, but these Dr. Carlill on repeated examination has failed to discover. Hence, the case is of interest also in suggesting either that the mental state has outlasted the neuritis or that it has occurred separately. When the clinician is faced with a well-defined and circumscribed mental syndrome in the course of an essentially diffuse and unsystematised disease such as a general toxæmia he is justified in asking whether he is dealing with a specific action of the toxin on a certain part or parts of the cerebral cortex. The underlying pathological basis of general paralysis is a diffuse and irregularly massed meningo-encephalitis, yet the

expansive ideas of the general paralytic are *sui generis*. Similarly paramnesia and confabulation form a symptom-complex of sufficient definiteness to be readily recognisable, and they occur typically in the course of alcoholic invasion of the nervous system, diffused throughout as we know that invasion must be. It can be no mere guess to suppose affinities between certain toxins and certain cerebral layers or groups of cells differing in physical properties; at the least we are compelled to imagine specific interactions between toxins and the chemical activities underlying the function of neuronic systems. We may adopt Pick's view and regard the cortex as a mosaic anatomically and physiologically, and patiently dissect from mental symptomatology such separable groups of symptoms as, occurring in the same form and under analogous pathological influences, may lead us to assume that certain neurons are more vulnerable than others, and that their impairment expresses itself clinically always in the same fashion. Disorder—perhaps associational—of these neurons gives a clinical picture as definite as that produced by disorder of any of the projection-systems, which all recognise and on the definiteness of which the study of neurology is based. Assent to the contention that the cerebral mechanism functions as a whole is no reason for ignoring evidence which may afford an insight into the ordered working of its component parts.

A NEW ROMAN OCULIST'S SEAL.

RENEWED interest has recently been taken in the oculist seals of the ancient Roman specialists and we have again to record the discovery of a new signet. This was found near Cologne in 1888, but was immediately lost, and only quite recently came to light again. Its owner's name, which, as usual, appears four times on the stamp, was Tiberius Julius Jasonis, and the nomina suggest that the seal dates from early imperial times. The text is as follows: "Tib Juli Jasonis: herodes" (euodes) "ad Aspritudines et Cicatrices et cœnum. Diaglaucium ad Impetum Secundum in v(eteribus?) c(oti).....bur ad Aspritudines et cicatrices to (tollendas) Aliso ad Impetum et quaecunque desi....." The incomplete final letters suggest, perhaps, desicco or desino. The first remedy, Euodes, merely means perfume, and has been found upon only a few of these seals. Of what its ingredients consisted we have no knowledge. It occurs upon the seal found at Tranent, in Scotland, and described by Sir J. Simpson in the *Monthly Journal of Medical Science* for 1851. The reading upon that relic contains the practically identical sentence, "Euodes ad cicatrices et aspritudines." Its occurrence upon these seals, usually without advising its mixture with any other collyrium, tends to show that it possessed some medicinal properties. It is also so advised upon a seal found at Ratisbon. Euodes is stated upon a seal, which before the war was in the Lille Museum, to be a cure for genas retortas, words that are a philological crux. According to a signet found at Bourges it was to be mixed with opobalsamatum, and here again as contra aspritudines—i.e., the palpebral granulations of ophthalmia. The cicatrices referred to may be either those of the transparent cornea, an affection which Galen describes thus—"Cicatrix appellatur (exulceratio totas membranas dividens) ubi nigro oculi exalto ulcere membrane crassities supervenit, et color albior apparet"; or they may be those of the eyelids or eye sockets, as one seal mentions genarum cicatrices, with which may be compared Ovid's expression—exspoliatque genas oculis. Celsus advises various collyria, according to whether the cicatrices were cavæ or crassæ. For the first case he prescribed Sphaerion, whose value he says was recognised by Asclepius himself. Diaglaucium is seldom mentioned upon oculist stamps, and it is uncertain what it was—probably poppy juice. Impetum designates the violence of the primal attack of ophthalmia before appearance of the mucous secretion. Secundum is a word like the phrase post impetum given upon many seals; it signifies the period when the first severe effects were declining. The lacuna in the text for which (c)oti...bur is suggested by the first editor of this seal is not easily filled up. Also the meaning of the word, or part of a word, Aliso is at present obscure.

A POSSIBLE DRAWBACK OF HIGH-TITRE ANTITOXIC SERUM.

WHATEVER may be the exact chemical nature of antitoxin, there is no doubt that it is intimately bound to the globulin molecules of the serum which contains it. The foreign protein of the antitoxic serums injected into the human patient for the treatment of tetanus and diphtheria is rapidly destroyed in the body, and the more quickly the smaller the quantity injected. The attached antitoxin is probably destroyed at the same time, and the question therefore arises whether it is advisable to aim at using small quantities of serum as is done in the modern high-titre brands. In the *Wien. klin. Wochenschr.* (1916, p. 37), T. Hamburger called attention to cases of tetanus and diphtheria which did well until the fifth or seventh day of treatment and then suddenly took a turn for the worse, ascribing the occurrence to the destruction by that time of the horse protein, and with it of the antitoxin. He suggested the advisability of using a larger quantity of lower-titre serum or of adding a large amount of normal horse serum at the moment of injecting. Professor Spronck, director of the Pathological Institute at Utrecht (ibid., 1917, p. 332), has followed up the question further, confirming Hamburger's suggestion by actual experiment. Using antitetanus serum with the mouse as a test-object, Spronck found that the blood serum of a goat which received 40 units contained in 40 c.c. of serum was more antitoxic ten days after the injection than the serum of a goat which had received twice the number of units in half the amount of excipient. The goat apparently destroyed 14 c.c. of horse serum, and with it the attached antitoxin, in ten days. Further experiments confirmed the result. Spronck concludes that the views of Hamburger are correct and that it is preferable to use low-titre antitoxic serum in tetanus. While there may be general agreement with this conclusion in theory, in military practice it would scarcely be feasible. For prophylaxis in bulk, at the front, the small quantity—3 to 4 c.c.—of serum of moderate titre now used has great practical advantages and appears to be efficient. Large doses of low-titre serum, besides troublesome to give, would add to the inconvenience and pain of the wounded. For therapeutic use, whether intrathecal or intravenous, the highest titre available is required. A further point in connexion with

the use of alien serum is of some theoretical interest. When prophylactic doses are administered at weekly intervals, the antibody formation against the alien serum is much enhanced, with the result that a progressively increasing destruction of antitoxin occurs, and the protection conferred lasts a shorter and shorter time at each injection. There is much still to be learned in the administration of antitoxin.

SNAPPING HIP.

IN the year 1859 Perrin showed the members of the Parisian Surgical Society a case in which he diagnosed recurrent dislocation of the right hip-joint in a man aged 22 who had injured the joint 12 years previously. This dislocation could be produced by the patient at will by forcible adduction of the right leg, and was accompanied by a loud snapping sound and a visible jerk; reduction of the dislocation took place spontaneously. Thus Perrin; but other members of the society held other views. A committee to investigate the matter was appointed and reported to the effect that no dislocation took place, and referred the snapping sound to a movement of muscle-tissue over the great trochanter. Chassaignac, one of the members of the committee, specified the tensor fasciæ latæ as the muscle here concerned; while Morel-Lavallée, another of the members, specified the anterior fibres of the glutæus maximus. No further instance of the condition appears to have been recorded until 1900, when Wertheim Salomonsen described two examples as "hysterical deformity of the hip with scoliosis." The patients, a man and a girl, seem to have had each a single "dislocation" of the hip and to have recovered from it suddenly with a loud snapping sound. Wertheim Salomonsen diagnosed a "physiological dislocation of the hip," rejecting the view (as Perrin had done) that the condition was due to tension of fibres of the glutæus maximus pressing the great trochanter out of place. In 1905 Ferraton described in detail a similar case, under the name "hanche à ressort," or "spring hip," in which the snapping was audible, visible, and palpable. In 1911 Heuilly was able to collect 57 cases of snapping hip, or Perrin-Ferraton's disease, from the literature. It appears, however, that not all the instances of snapping hip are as straightforward as those described above. Dr. G. Kapsenberg proposes[1] to distinguish two classes of the disease, the typical and the atypical. In the typical cases the cause of the snap lies at the level of the great trochanter; "something" slips over this bony prominence, and this "something" consists, behind, of fibres of the glutæus maximus, in front, of fibres of the tensor fasciæ latæ, and in its middle part of the converging descending fibrous cristo-femoral tract which forms the ilio-tibial band. The whole is called the "hip-deltoid" by Dr. Kapsenberg, and is compared to the deltoid muscle of the shoulder-joint. The distinction of the cristo-femoral (Zur Verth) or fascio-gluteal (Heuilly) tract from the ilio-tibial band is described as functional rather than anatomical. In some people the typical snapping of the hip can be produced at will, particularly if the glutæus maximus is kept out of action, the cristo-femoral band then slipping forwards in front of the great trochanter harmlessly and without pain. But in other instances the snapping is produced involuntarily, and is both disabling and painful; this state of affairs is promoted by any morbid process about the hip that either shortens the cristo-femoral tract and so increases its tension, or weakens the glutæus maximus muscle, or increases the prominence of the great trochanter. As for the atypical cases of snapping hip, these are rarer, and Dr. Kapsenberg defines them as those in which the snap is not produced at the level of the great trochanter but somewhere else. He thinks it unlikely that a subluxation of the hip-joint accounts for any of the instances, and gives details of a case of his own in which the snap was produced near the anterior superior iliac spine. Under local anæsthesia the tissues were dissected in this region, and with the coöperation of the patient it was proved that the snapping band of tissue was a tendinous part of the ilio-psoas muscle, in all probability the so-called third head of it that springs from the anterior inferior iliac spine and passes obliquely across the head of the femur to gain its insertion into the lesser trochanter. The head of the femur at this point was thought to be abnormally prominent, though no definite bony outgrowth was made out, and when the patient flexed the hip the overlying tendinous part of the ilio-psoas muscle slipped from it sideways and outwards with a loud and palpable snap. Conversely, when the patient once more extended the flexed leg, the sharp edge of the head of the femur held up the tendinous band under increasing tension until, as a smoother part of the bone came to underlie the band, it slipped back medial-wards with a violent snap and shock. Dr. Kapsenberg divided this band; the wound was sewn up and healed by first intention, and the patient's hip no longer could be made to snap.

[1] Nederl. Tijdschr. v. Geneeskunde, Amsterdam, 1916, ii., 1849.

THE Croonian Lecture of the Royal Society will be delivered on May 3rd by Dr. Thomas Lewis, the subject being "The Excitation Wave in the Heart."

THE CONTROL OF VENEREAL DISEASES.

Council Schemes.

THE draft scheme for the *City of Bristol* recently submitted to the Local Government Board provides for the clinical work of the venereal treatment centres to be undertaken jointly by the Bristol Royal Infirmary and the Bristol General Hospital, and for the pathological work to be carried out at the laboratory of the University of Bristol under the professor of pathology.

Dr. F. H. Morison, county medical officer of health, has submitted to the *Cumberland County Council* a suggested scheme for the diagnosis and treatment of venereal diseases in the county. In order to obtain some idea of their prevalence Dr. Morison sent a circular letter to each medical practitioner in the county asking him how many cases of venereal diseases he treated in a year. He says:

> A large majority were good enough to reply to my letter, but several did not, and so even these figures are incomplete. The figures I obtained are as follows:—Number of cases of syphilis, 479; gonorrhœa, 537; soft chancre, 131; total, 1147. It is generally agreed that in any community gonorrhœa is at least three times as prevalent as syphilis, but it will be noted in the figures given for this county that there are only 58 more cases in an average year. There can be no doubt that a large number of cases of gonorrhœa, and many cases of syphilis as well, in poor persons, go to chemists, herbalists, and quacks for treatment. In the case of gonorrhœa I think it is no exaggeration to say that 70 per cent. of the cases go to a quack in the first place.

With regard to the provision of laboratory facilities, no laboratory exists in the county where the work could be done except that in connexion with the County Health Department. Dr. Morison proposes, therefore, to ask the Durham University College of Medicine, Newcastle-on-Tyne, to give the same facilities as have been offered to

the county councils of Northumberland and Durham. He hopes to arrange for beds and out-patient centres at Carlisle and Whitehaven, noting that the authorities of Workington Infirmary and of Penrith and Keswick Cottage Hospitals were unable to offer facilities. In view of the desirability of having a woman doctor to treat cases in females and believing that at present there is no woman doctor in the county, he suggests the appointment of a woman on the staff of the county medical officer. Dr. Morison regards the cöoperation of the general practitioner as essential to the success of the scheme and suggests that representatives of all branches of the profession in the county should be asked to attend the committee meetings. In his summary of expenditure he allows for the treatment of at least 500 cases of gonorrhœa per annum and fixes the total between £1800 and £2200 for the first year.

The scheme submitted by the *County Borough of Bournemouth* for the approval of the Local Government Board contains, amongst others, the following recommendations by Dr. A. D. Edwards, the medical officer of health:—

Laboratory facilities.—That arrangements be made with the Hants county authority for the examination at the Winchester Laboratory of blood specimens by the Wassermann test at a charge of 5s. per specimen. (It is estimated that in the first year 200 specimens will be forwarded from the venereal clinics provided for the Bournemouth authority; and 20 specimens from private medical practitioners in Bournemouth.) That arrangements be made with the Bournemouth borough bacteriologist for the examination of specimens with a view to the detection of the spirochæte of syphilis and the micro-organism of gonorrhœa at a charge of 3s. 6d. per specimen; and if the number of spirochæte examinations falls below 60 during the year, of 4s. per spirochæte specimen. (It is estimated that in the first year the clinic will require 200 examinations for gonorrhœa, and 100 for syphilis; and that medical practitioners in Bournemouth will require the examination of 40 specimens for gonorrhœa and 20 for syphilis.) That the medical officer of health make arrangements for the provision of apparatus for the collection of specimens, with circular of instructions. The estimated expenditure on these recommendations is £146.

Clinics and hospital beds.—That arrangements be made with the Royal Victoria and West Hants Hospital and with the Cornelia Hospital, Poole, for the treatment at clinics of patients from Bournemouth and for the in-patient treatment of such of these cases as may require it. (A tentative estimate of the cost incurred by the treatment, except the supply of salvarsan, at the Bournemouth Voluntary Hospitals is £350 and at the Poole Voluntary Hospital £70.)

Extra clinic consultations.—That arrangements be made with the senior medical officer of the Bournemouth Hospital venereal clinic for attendance at consultations with medical practitioners elsewhere than at the clinic, at a charge of £1 per consultation. (During the first year ten such cases are estimated for.)

The report recommends further: That infants—if breast-fed, accompanied by their mothers—suffering from ophthalmia neonatorum should be admitted into the sanitary hospital; and that the medical officer of health, in addition to his other duties, should give addresses on venereal diseases to clergymen, pharmacists, and midwives.

Enlightenment Campaign.

A conference of citizens representing the various interests—municipal, industrial, educational, social, and religious—in the metropolitan borough of Southwark has been convened by the Mayor of Southwark at the Town-hall, Walworth-road, London, S.E., on Friday, May 4th, at 5 P.M. The chairman and honorary secretaries of the National Council for Combating Venereal Diseases will outline the work of the National Council and suggest methods for an effective educational campaign.

Unqualified Treatment and the Central Midwives Board.

At a recent meeting of the Central Midwives Board a letter was considered from the honorary secretary of the Leicester and Leicestershire Midwives Association urging the immediate introduction of legislation for the purpose of rendering it a penal offence for any person other than a qualified medical practitioner to undertake the treatment of venereal diseases. The Board decided—

That, in view of the grave national dangers arising from the neglect or the improper treatment of venereal diseases, the Central Midwives Board considers that legislation should be introduced with the least possible delay, for the purpose of rendering it a penal offence for any person other than a registered medical practitioner to undertake the treatment of venereal diseases, and directed that this decision should be communicated to the National Council for Combating Venereal Diseases.

LITERARY INTELLIGENCE.—Messrs. Butterworth & Co. (India), Limited, announce the forthcoming publication of a monograph on "The Treatment of Kala-azar," by Dr. U. Brahmachari, lecturer on medicine at Campbell Medical School.

COLLOSOL COCAINE.

THE successful outcome of the experiments leading to the production of colloidal quinine, morphine, and cocaine was foreshadowed by THE LANCET, and we are now able to state that a collosol of cocaine has been prepared at the Crookes Laboratories, where the idea was conceived of obtaining the alkaloids in colloidal form isomorphic with the colloidal protein of the body. A quinine collosol is also, we understand, prepared.

Samples of collosol cocaine have been submitted to Professor W. J. Simpson, professor of hygiene, King's College, London; Professor R. Tanner Hewlett, professor of bacteriology in the University of London; and to Dr. John Eyre, director of the Clinical Bacteriological Departments, Guy's Hospital, whose reports on the tests made with the object of testing the toxic and anæsthetic properties of this drug are as follows:—

University of London, King's College, Strand, W.C., March 23rd, 1917.

TESTS OF TOXICITY.

1 per cent. Collosol Cocaine.	*1 per cent. Cocaine Hydrochloride.*
I. Rabbit No. 4.—Weight, 3270 grammes. 0·26 c.c. injected intravenously. No effect. (March 13th.)	I. Rabbit No. 3.—Weight, 2070 grammes. 0·20 c.c. injected intravenously. No effect. (March 13th.)
II. Rabbit No. 4.—0·75 c.c. injected intravenously. No effect. (March 13th.)	II. Rabbit No. 3.—0·5 c.c. injected intravenously. No effect. (March 13th.)
III. Rabbit No. 4.—5 c.c. injected intravenously. No effect. (March 15th.)	III. Rabbit No. 3.—3 c.c. injected intravenously. Immediately after injection the animal collapsed and became insensible, 5 minutes later convulsive twitchings, eyes insensitive. 10 minutes recovering, but weak on hind legs and eyes now sensitive; 15 minutes practically recovered. (March 15th.)
IV. Rabbit No. 3.—3 c.c. injected intravenously. No effect. (March 16th.)	IV. Rabbit No. 4.—5 c.c. intravenously. Collapsed immediately after injection, with slight twitching, and died almost at once. (March 16th.)
V. Rabbit No. 6.—Weight, 2770 grammes. 5 c.c. injected intravenously. No effect.	V. Rabbit No. 3.—3 c.c. injected intravenously. Immediately collapsed and died. (March 19th.)
VI. Rabbit No. 6.—10 c.c. injected intravenously. No effect. (March 19th.)	VI. Rabbit No. 5.—Weight, 2750 grammes. 3·5 c.c. injected intravenously. Immediately after injection was convulsed and died almost at once. (March 19th.)

From these tests of toxicity we find that about 3 c.c. of a 1 per cent. solution of ordinary cocaine hydrochloride (equivalent to about ½ grain) is a fatal dose for a rabbit of 2000–3000 grammes weight, injected intravenously.

As regards the collosol cocaine, 10 c.c. of the 1 per cent. preparation (equivalent to about 1·6 grains) produced no toxic effect whatever.

W. J. SIMPSON.
R. T. HEWLETT.

Guy's Hospital (Bacteriological Department), April 21st, 1917.

REPORT ON SPECIMEN OF COLLOSOL COCAINÆ 1 PER CENT., RECEIVED FROM MESSRS. CROOKES' LABORATORIES.

A. *Toxic properties.*—A full-grown rabbit, weighing 2000 grammes, received on March 1st 2 c.c. of collosol cocainæ 1 per cent. intravenously, the injection being made at the rate of 1 c.c. per minute. No immediate or remote effects were observed. On March 12th the same rabbit received 15 c.c. of the same solution intravenously, within ten minutes. No immediate or remote effects were observed. Five hours later 3 c.c. of the 1 per cent. solution of cocainæ hydrochlor. were injected at the rate of 1 c.c. per minute. Just before the injection of the third c.c. had been completed the animal was seized with convulsions and died within a minute. Identical results were obtained on two subsequent occasions. In my opinion, therefore, collosol cocainæ can be regarded for all practical purposes as non-toxic.

B. *Anæsthetic properties.*—1. Two drops of collosol cocainæ dropped into the left eye of a rabbit produced mydriasis and complete anæsthesia in three minutes. 2. Two drops collosol cocainæ instilled into the left eye of the human subject produced complete anæsthesia and enabled me to remove a foreign body embedded in the cornea, without pain. (I can personally vouch of the completeness of the anæsthesia, as the foreign body was embedded in my own cornea and I removed it myself in front of the looking-glass.) 3. 0·8 c.c. collosol cocainæ injected into the male urethra (a very nervous and sensitive patient) produced complete anæsthesia in five minutes and permitting the passage of a 7·5 mm. urethrascope.

The above three representative examples indicate the nature of evidence, which, in my opinion, establishes the claim of the Crookes collosol cocainæ that it can be regarded as an efficient local anæsthetic.

JNO. EYRE.

It is certainly not a little remarkable that colloidal cocaine can be given exclusively for its anæsthetic effects, and it seems probable that we are in the presence of a remarkable development in therapeutics, as we on a previous occasion predicted might occur in connexion with colloidal treatment.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

To be temporary Surgeons: R. E. Rampling, D. Heard, T. L. P. Harries, F. M. Mosely, A. E. P. Parker, N. Braithwaite.

The following appointments have been notified: Fleet Surgeon: W. H. Pape to *Pembroke*. Surgeons: C. F. Willis to *Halcyon*, and E. C. Holton to *Vivid*. Surgeons (temp.): M. Neilson to *Leander*, R. A. Hobbs to *Albion*, D. W. Warren, J. R. S. Thompson, and J. H. B. Hogg to *Vivid*, R. M. Barrow and R. L. Glass to *Pembroke*, H. Waldo and J. L. Lamond to *Victory*.

ARMY MEDICAL SERVICE.

Col. J. T. Fotheringham, C.M.G., Canadian A.M.C., to be temporary Surgeon-General.

Lieut.-Col. (temp. Col.) R. R. Sleman relinquishes his temporary rank on vacating the appointment of Assistant Director of Medical Services.

Col. J. H. Daly is retained on the active list and to be supernumerary.

Capt. D. W. Hardy to be Deputy Assistant Director of Medical Services.

TERRITORIAL FORCE.

Lieut.-Col. W. K. Clayton to be temporary Colonel whilst an Assistant Director of Medical Services.

Lieut.-Col. (temp. Col.) J. Young relinquishes his temporary rank on vacating the appointment of Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. R. R. Sleman is restored to the establishment.

Capt. (temp. Maj.) J. W. Keay to be acting Lieutenant-Colonel whilst commanding a Field Ambulance.

A. M. Paterson to be temporary Major.

Temp. Capt. Gerald S. Samuelson to be temporary Major whilst commanding troops on a Hospital Ship.

Capt. R. C. Carlyle is seconded for service with the Egyptian Army.

Capt. D. W. Hardy is seconded while holding an appointment as Deputy Assistant Director of Medical Services.

Lieut. A. C. Ainsley to be Captain.

Temp. Lieut. George F. B. Simpson to be temporary Captain.

H. T. Thomson to be temporary Honorary Captain whilst serving with No. 11 Stationary Hospital.

E. Harding to be temporary Honorary Captain whilst employed with No. 22 General Hospital.

Temp. Capt. F. G. Crookshank relinquishes his commission.

Temp. Hon. Lieut. T. A. Loughrey, from Canadian A.M.C., to be temporary Lieutenant.

SPECIAL RESERVE OF OFFICERS.

Lieutenants to be Captains: T. Crisp, A. L. Giblin, M. McG. Russell, R. C. B. Ramsay, A. L. V. Davin, W. Richards.

TERRITORIAL FORCE.

Lieut.-Col. W. K. Clayton is seconded whilst holding an appointment of Assistant Director of Medical Services.

Capt. (acting Lieut.-Col.) A. A. Hingston reverts to the temporary rank of Major on ceasing to command a Field Ambulance.

Lieut.-Col. J. Young is restored to the establishment.

Capt. (temp. Lieut.-Col.) P. Moxey relinquishes his temporary rank on ceasing to command a Field Ambulance.

Capt. R. G. Annis to be acting Major whilst in command of a Field Ambulance.

URBAN VITAL STATISTICS.

(Week ended April 14th, 1917.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 17,000,000, the annual rate of mortality was 18·5, against 18·0 and 17·3 per 1000 in the two preceding weeks. In London, with a population exceeding 4,000,000 persons, the death-rate was 19·5, or 2·6 per 1000 above that recorded in the previous week; among the remaining towns the rates ranged from 7·0 in Edmonton, 8·2 in Grimsby, and 9·1 in Eastbourne, to 28·2 in Dudley and in Southend-on-Sea, and 38·6 in Hastings. The principal epidemic diseases caused 506 deaths, which corresponded to an annual rate of 1·6 per 1000, and included 320 from measles, 66 from whooping-cough, 51 from infantile diarrhœa, 45 from diphtheria, 13 from enteric fever, and 11 from scarlet fever. The deaths from measles showed a further increase compared with the numbers in the 11 preceding weeks, and caused the highest annual death-rates of 3·6 in West Ham and in Sunderland, 5·2 in South Shields, 5·9 in Bolton, and 7·3 in Dudley. The 722 cases of scarlet fever and the 1317 cases of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were respectively 33 below and 20 above the numbers at the end of the preceding week. Of the 6010 deaths from all causes in the 96 towns, 187 resulted from violence. The causes of 67 of the total deaths were uncertified, and included 10 in Liverpool, 8 in Birmingham, and 5 in Sheffield.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual death-rate was equal to 19·1, against 17·9 and 16·9 per 1000 in the two preceding weeks. The 410 deaths in Glasgow corresponded to an annual rate of 19·2 per 1000, and included 27 from measles, 22 from whooping-cough, 7 from infantile diarrhœa, and 2 from diphtheria. The 141 deaths in Edinburgh were equal to a rate of 22·2 per 1000, and included 22 from measles, 18 from whooping-cough, and 1 from infantile diarrhœa.

Irish Towns.—The 205 deaths in Dublin were equal to a rate of 26·8 or 2·9 per 1000 above that recorded in the previous week, and included 18 from measles, 2 from infantile diarrhœa, and 1 from whooping-cough. The 170 deaths in Belfast corresponded to an annual rate of 22·6 per 1000, and included 4 each from enteric fever and measles and 3 each from whooping cough and infantile diarrhœa.

Correspondence.

"Audi alteram partem."

"SOLDIER'S HEART."

To the Editor of THE LANCET.

SIR,—As medical adviser to a large insurance company a considerable number of cases were referred to me recently in connexion with the short-term endowment policies for the purpose of the War Loan. Among them one group specially impressed me in relation to the subject of "soldier's heart," recently discussed in your columns.

I saw several young men, some looking jaded and worn, others robust and well, who all alike said they had been discharged from the Army as unfit for service for valvular disease of the heart; some showed me their certificate to that effect. On my examination the heart yielded no abnormal physical signs. It was of the usual size, its apex in the proper place, its action regular, and its sounds normal. There were no murmurs and no cardiac symptoms. The heart was therefore presumably healthy. It was, at any rate, certain that there was no valvular disease. The men when at the front, I ascertained, had some cardiac symptoms—viz., shortness of breath, palpitation, and even pain on exertion—i.e., signs of cardiac overstrain. They were therefore rightly put upon the sick-list. I presume there must have been murmurs also upon which the diagnosis of valvular disease must have been made.

The cardiac murmurs which are associated with nervous excitement and with dilatation of the heart do not seem to be as familiar as they should be to those who are responsible for these certificates, for though the cases I speak of came in a group several others have fallen under my observation in private practice, and I have for some time had it in mind again to draw attention to the subject. These functional murmurs, as they are usually called, are almost without exception systolic, and may be heard at the base, or apex, or widely over the whole præcordium. Of the base murmurs it is unnecessary to refer to those at the left or pulmonary base, associated with anæmia, especially as they are hardly ever met with in young men. A more important murmur, but one rarely referred to, and, I think, not generally recognised, is that which, systolic as usual, occurs over the aortic base and above. It is more frequently met with under those very conditions which these "soldier's" cases would present—viz., nervous excitement where the results of the examination and the decision based upon them are important, and arouse anxiety in the candidate. In ordinary times this murmur is most often met with in candidates for insurance, where marriage, it may be, or a valuable appointment hangs upon the verdict. This murmur is often quite loud, audible at the right base and for a short distance above, and it may be almost musical. It is not unlike the murmur of slight organic disease, but it is transitory, disappearing, it may be, in a few minutes when the excitement passes off, and it is easily reproduced if the excitement returns.

Besides these murmurs at the base, transitory murmurs may be heard at the apex or over the body of the heart. These have been called dilatation murmurs—not a good name as mixing up facts and interpretation, but justifiable perhaps in this instance as the murmurs vary with the dilatation and come and go with it. Though systolic in time they are not propagated as they should be if these were due to regurgitation through the mitral or tricuspid valves. On the left side they are limited to the præcordial area and are not heard in the axilla or behind. Where dilatation of the heart is extreme they may be propagated just as the murmurs due to organic disease both on the right and left side, and these no doubt are truly regurgitant, but it is not in these cases that the diagnosis is difficult, for the evidence of extreme dilatation is obvious. When the heart is weak, as in convalescence from long illness, these murmurs may be easily produced by a little over-exertion and their association with dilatation be easily demonstrated.

The diagnosis of valvular disease of the heart is a serious matter for the subject of it. Wrongly made it may unfairly ruin a promising career in the Army or in some other profession where a certificate of health is required, while it will, of course, strongly prejudice the prospects of

life insurance. Worst of all, it may partly by the alarm it may excite, and partly owing to the treatment which such a diagnosis is thought to involve, convert the unhappy victim into a cardiac hypochondriac, and make him a misery to himself and all about him. I recall the case of a young man who presented himself for examination for an insurance on his life prior to his marriage. The doctor looked gravely at him and said, "Young man, *walk* through life." He did not walk through life, but ran at a racing speed. Yet he lived till a good age, and never had a cardiac sign or symptom. Fortunately, the man had too busy a life to act on the suggestion or to dwell on it. Otherwise it might have been disastrous.

If the existence and frequency of these murmurs be kept in mind the diagnosis is, as a rule, not difficult. Mistakes can be avoided by a little more knowledge and caution. The knowledge would suggest caution, and the caution would be justified by the disappearance of the murmurs and the proof that the suggested diagnosis was wrong.

I am, Sir, yours faithfully,

Wimpole-street, W., April 21st, 1917. SAMUEL WEST.

"MILITARY CARDITIS."

To the Editor of THE LANCET.

SIR,—May I suggest "military carditis" as a useful term for the soldier's cardiac effort syndrome of which so much has been heard recently? We have the authoritative example of Thomas Watson for such a comprehensive term when dealing with a problem that is not easily defined, and as a former pupil of Dr. Frederick Roberts I think there is much to be said for the emphasis he used to lay upon what he called "cardiac apparatus" when discussing problems of the heart. In an organ like the heart where the three parts—endo-, myo-, and peri-cardium—are so intimately associated it is difficult to draw a hard-and-fast line between disease of the one and the others; in fact, in many cases it cannot be done.

So far attention has been devoted almost entirely in "military carditis" to the myocardium, apparently because the peri- and endo-cardia do not show any gross lesions, but neither does the myocardium in many cases. I have drawn attention elsewhere to the importance of the pericardium and its fluid, pointing out that that fluid exists normally under a negative pressure, whereby the fluid is kept at an equal thickness all over the surface of the heart. I have pointed out also that most likely the movements of this peculiarly circumstanced fluid have much to do with the sounds of the heart, a contention that is supported by my rubber balloon experiments. The opinion I have formed after examining many hundreds of men before the furnaces, as well as boys before and after running, is that the increased cardiac dullness is due to an increase of pericardial fluid which is of such physiological importance in connexion with the running of the accelerated heart. Experiments also bear out this statement, for the pericardia of rabbits shot standing contain less fluid than the pericardia of those shot when driven out by ferrets—i.e., under stress and strain. Another interesting fact in this connexion is that the effect of killing cats by chloroform is to cause an increase of pericardial fluid and a sudden variation of the intrapericardial pressure.

Does shell shock produce such a sudden variation of the intrapericardial pressure? and does it thereby cause a disturbance of the regular wave movements of the fluid which are to a great extent responsible for the sounds of the heart? Dr. Lewis, who is quoted as an authority on electrocardiography, states that the curves are due to impulses which have travelled the auriculo-ventricular bundle, although similar curves are obtainable from the lower order of animals in which there are no such bundles! The fact that throughout the vertebrate series we find pericardia and pericardial fluids is evidence of their great importance, and that the latter have much to do, by means of their electrical resistance, with the causation of the so-called electro-cardiograms.

As a result of my experiments I have devised a double-chested stethoscope, which I call the "Cardioscope," whereby I find that in normal hearts the sounds conducted to each ear separately are equal, whereas in abnormal states the sounds are unequal. By this instrument one hears the "murmurs" resolved into other sounds.

I am, Sir, yours faithfully,

Swansea, April 14th, 1917. G. ARBOUR STEPHENS.

THE TECHNIQUE OF LUMBAR PUNCTURE.

To the Editor of THE LANCET.

SIR,—Surgeon F. A. Williamson's letter in your issue of April 21st refers, as you remark, to a real difficulty occasionally experienced in the technique of lumbar puncture and one to which he does well to draw attention. The failure of a considerable collection of cerebro-spinal fluid to flow freely until the needle is manipulated whilst *in situ* may be due to the fact that a constituent of the cauda equina temporarily blocks the needle at its orifice, or that the needle at first enters only a small loculus of fluid and not the main cisterna. In connexion with the first possibility it may be noted that if the lumbar cisterna is distended by fluid there would be a greater tendency for a nerve root to be pressed against the orifice of the needle than if the normal conditions obtained. In connexion with the second possibility, it must be remembered that the pia-arachnoid system is not a simple cavity but a series of small and large cavities separated by trabeculæ. The free intercommunication in health of the loculi so formed is no doubt interfered with in disease by the added factor of plastic lymph deposit. Whatever the cause may be, the moral, as your correspondent points out, is not to be content with a restricted flow in any case, and especially not to be content with this result in a case suspected on clinical grounds to be one of cerebro-spinal fever, until the needle is pushed a little farther in or is slowly withdrawn a little, or is tested as to its patency by passage of the trocar or stylet. I use the term "restricted flow" rather than "at a normal rate" in such a case, because I am always more suspicious that I am dealing with an instance of the difficulty to which your correspondent refers when the fluid flows at *less* than the normal rate. I think many practitioners underestimate the initial rapidity of the normal rate of flow immediately after the puncture is made.

It may not be out of place to refer to one or two other difficulties that not infrequently present themselves in connexion with lumbar puncture. One of these again has to do with restricted flow of the fluid. Operators sometimes use a long needle for a small patient, and do not notice that the needle is pointing upwards, its delivery end being well above the level of any part of the cerebro-spinal system. This difference of levels may have been increased by raising the hips well on to the edge of the bed for convenience of the procedure, thus leaving the child's trunk and head in the trough of the bed. Should the cerebro-spinal pressure not be much, or at all, raised, very little fluid may flow until the patient's hips are rolled over towards the needle, the delivery end of which is thus brought to a much lower level. This point in technique becomes important when it has been decided to drain a highly purulent exudate as completely as possible.

The admixture of blood with the cerebro-spinal fluid constitutes another difficulty in the technique, as it prevents accurate chemical and histological investigations. If this is seen to occur the first few drops of fluid should be received into a separate vessel (indeed, this is always a sound thing to do), and the needle should be slowly withdrawn a little, because it is very likely that the blood is contributed by the venous plexus lying on the anterior wall of the canal. If the blood is still present, and it is not obvious from the naked-eye examination that the fluid is also purulent—in which case the histological and chemical examination becomes of no great differential value—the needle should be withdrawn and a fresh puncture should be made at a different space.

Finally, a word may be added in regard to so-called "dry punctures." If the points in manipulation referred to above are observed, it may almost certainly be concluded that the meaning of a dry puncture is that the needle has not entered the pia-arachnoid space at all.

I am, Sir, yours faithfully,

Harley-street, W., April 22nd, 1917. THOMAS J. HORDER.

THE AFTER-TREATMENT OF INFECTED HÆMOTHORAX.

To the Editor of THE LANCET.

SIR,—Since one of the chief dangers of an infected hæmothorax is the secondary infection which almost invariably occurs after resection and drainage, any method of treatment

which will lessen or prevent this will prove of the utmost importance and value.

The results of the Carrel-Dakin method have been most striking and shown by:—1. The uninterrupted improvement in the general condition of the patient after resection and the rapid settling of the temperature. 2. The very rapid obliteration of the cavity. 3. The small quantity and inoffensive nature of the discharge. 4. The firm primary union of the sutured portions of the empyema wound.

After resecting and draining in the usual way the Dakin's solution is not at first run into the pleural cavity on account of the risk of breaking down loose adhesions, but the dressings are kept constantly moist by means of irrigation every two hours with a few ounces of the solution. The procedure here is to use a Carrel tube in the form of a horseshoe with multiple small perforations. The open ends are connected with the tube leading to the reservoir by a two-way glass connexion. The horseshoe is kept in position by being placed under the safety-pin of the drainage-tube and by being attached to the chest higher up. The surrounding skin may be protected with sterile vaseline, but in practice this is not essential, since the hypochlorite rapidly loses its tendency to irritate after contact with the discharge from the empyema. After ten days or a fortnight a Carrel tube with few terminal perforations may be inserted into the pleural cavity alongside the drainage-tube and irrigation every two hours with a few ounces of *half-strength* Dakin-Daufresne solution carried out.

After an extended experience of septic hæmothorax and the deleterious effects of the secondary infection after resection we have been firmly convinced of the value of the above method in lessening or almost preventing this important complication. I am, Sir, yours faithfully,

C. DEAN, M.B. Oxon.

Millicent Sutherland Ambulance, B.E.F., April 17th, 1917.

THE CLOSURE OF COLOTOMY OPENINGS.

To the Editor of THE LANCET.

SIR,—Had Mr. P. Lockhart-Mummery, in his letter to THE LANCET of April 7th, confined himself to the subject of his paper I should not have troubled you with a second communication, but as he has extended his remarks to the methods of treating cancerous growths of the colon, and asks "Why are surgeons so shy of primary resections and suture of the colon that they subject their patients to three operations where one would do?" and as he goes on to say that "this seems an altogether unnecessary procedure," his attitude towards a subject of which he professes to be a master demands attention.

If he will turn to the transactions of the Surgical Section of the International Congress of Medicine held in London in 1913 he will find in the report of Professor Bastianelli and the subsequent discussion on the treatment of cancer of the colon the answer he requires.[1] As this report in full may not be accessible to some of your readers I may say, briefly, that one of the most serious bars to the success of primary resection of the colon is the presence of hard fæcal masses above the growth, and that this handicap can be removed by a preliminary proximal colostomy followed by washing out the diseased segment of bowel. By this means we secure a relatively clean field for operation, while afterwards the line of union is freed from the irritation of the fæcal stream, now diverted. Again, intracolic pressure and tension on the suture line from gaseous distension are entirely obviated and rest, so essential to good union of intestinal wounds, is secured. It is worth while noting that Mr. Lockhart-Mummery, in a later paragraph in his letter, while advocating his view that the bowel should be made to act daily from the time of the resection unconsciously furnishes reasons for the multiple operation. Thus, he states that "flatus in the bowel is far more dangerous than a little liquid fæces," and, again, that "the one thing to avoid is the presence in the neighbourhood of the anastomosis of masses of hard fæces."

From a long and fairly large experience of resection of the colon with and without actual intestinal obstruction I am firmly convinced that the inclusion of a preliminary colostomy has reduced enormously the death-rate of the operation. Reverting to the original subject, Mr. Lockhart-Mummery asserts that the Greig-Smith operation is "liable to leave a weak spot," that "many patients have to wear a belt," and that "it may be followed by stricture." My reply is that I have not seen a single instance of any one of these defects, nor do I think any of them should occur if the operation is properly done, and certainly not in the case of young soldiers with well-developed abdominal muscles. Possibly some ambiguity as to the essentials of the procedure has arisen from calling it the extraperitoneal method. Personally, as I said in my former letter, I do not dread opening the peritoneum. The one factor which makes the operation so much safer than resection of the bowel is that the mesenteric side of the colon with its vascular and nerve-supply is not interfered with.

As to details, the most important thing to attend to is to freely mobilise the opening and the adjacent colon. When this has been done the involved segment can be lifted out of the abdomen, and with adequate gauze packing it is a matter of little or no consequence whether the peritoneum is, or is not, opened. As to stricture following the operation, bearing in mind that usually at least one-half of the circumference of the bowel is not involved, and that if the sutures are inserted at right angles to the long axis of the colon the lumen is not encroached on, and that most preliminary colostomies are placed in the capacious ascending colon, there need be no fear of this developing. One word as to the spur. This formidable bugbear exists only so long as the colon is anchored to the abdominal parietes. Freely mobilise the involved segment of the bowel and the spur ceases to have any significance and enterotomes any useful application. I am, Sir, yours faithfully,

Sheffield, April 7th, 1917. SINCLAIR WHITE.

[1] THE LANCET, 1913, ii., 480.

READING BY EAR.

To the Editor of THE LANCET.

SIR,—I notice in your issue of April 14th certain criticisms by Sir Arthur Pearson on the speed attainable in reading ordinary letterpress by ear with the optophone. The speed attained on March 28th was a maximum of three words a minute. My estimate of 25 words a minute was based on the fact that the signals remain clear and characteristic at that speed. It is therefore only a matter of practice. Three months ago neither I nor anybody else had ever read a line of letterpress by ear. The reading of the *Times* blindfold is now a possibility demonstrated beyond doubt or cavil. The instrument is substantially that described in Roy. Soc. Proc., A, 90, p. 373.—I am, Sir, yours faithfully,

E. E. FOURNIER D'ALBE, D.Sc.

Maddox-street, W., April 20th, 1917.

Obituary.

WILHELM WINTERNITZ.

Wilhelm Winternitz, who died, we now learn, on Feb. 22nd at the age of 82 years, was emeritus professor of medicine in the University of Vienna and had long earned the title of the "father of scientific hydrotherapy," presiding in this capacity at the last great balneological congress held at Meran before the war. From the time of his inaugural dissertation (1865) on "The Rational Basis of Certain Hydrotherapeutic Measures" to the appearance, a few days before his death, of "The Water-Cure and Natural Immunity" Winternitz was constantly occupied in research on physical treatment. Many of his studies of the action of thermo-mechanical influences on the circulation and metabolism are now classical, as well as the long and bitter feud between himself and Liebermeister with regard to the bath treatment of infectious diseases. His idea of determining a blood-flux to particular organs and parts of the body was worked out in great detail long before Bier annexed the word "hyperæmia." Winternitz's belief in his own methods was very great, so that he imbued his patients with a like confidence, and he was for nearly half a century one of the busiest consultants in Vienna. But in spite of his great popularity he remained an inquirer and a research student to the last, intent on improving the field of medicine which he had so specially made his own.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue :—

Killed.

Capt. T. W. Martin, R.A.M.C., attached Royal Scots, received his medical education at Victoria University, Manchester, and qualified in 1912. He was in practice at Hale, Cheshire, before joining the R.A.M.C.

Capt. V. K. Sadler, R.A.M.C., was educated at Rossall School and at University College, London, and qualified in 1907. After serving as medical officer at Tiverton Infirmary he became a surgeon to the P. and O. Line. Later he joined the R.A.M.C., and went to the front at the beginning of this year.

Capt. G. R. Plaister, R.A.M.C., attached York and Lancaster Regiment, was a student at the London Hospital and qualified in 1905. He was in practice at Tottenham, London, before joining up, and went to the front in September, 1915, taking part in the engagements at Loos and on the Somme.

Lieut. E. Evans, R.A.M.C., attached Royal Welsh Fusiliers.

Accidentally Killed.

Capt. J. J. Weaver, R.A.M.C., was a student at University College, London, and qualified in 1886. He was medical officer of health for the county borough of Southport, and had made several contributions to the medical journals. He died at Curragh Camp as the result of a riding accident.

Died.

Lieut. L. G. Scudamore, R.A.M.C., was a student at St. Thomas's Hospital, London, and qualified in 1891. He was in practice at New Tredegar, Mon., prior to joining the R.A.M.C. in June, 1916, and died in camp in England after a short illness.

Capt. T. McCosh, M.C., R.A.M.C., qualified at Glasgow in 1905 and held a house appointment at the Glasgow Western Infirmary. He was in practice at Woodford Green, Essex, previous to joining the R.A.M.C., and had been awarded the Military Cross.

Died of Wounds.

Lieut. J. A. Gregory, R.A.M.C., was educated at Manchester University and qualified in 1914. He held the appointment of house surgeon at the Evelina Hospital for Children, London, and joined the R.A.M.C. in June last.

Wounded.

Major G. J. Boyce, Canadian A.M.C.
Capt. J. F. Murphy, M.C., R.A.M.C., attached Royal Field Artillery.
Capt. W. Parker, R.A.M.C., attached King's Own Scottish Borderers.
Capt. J. S. Prentice, R.A.M.C., attached Royal Berks Regiment.
Capt. J. G. Brown, R.A.M.C., attached Royal Irish Rifles.
Capt. A. Short, New Zealand Medical Corps.
Capt. A. H. Thomas, R.A.M.C.
Capt. T. C. Storey, R.A.M.C.
Capt. R. J. Gardiner, Canadian A.M.C.
Capt. G. R. Johnson, C.A.M.C., attached Canadian Infantry.
Capt. W. G. Goudie, R.A.M.C., attached Royal Flying Corps.
Capt. R. A. W. Proctor, R.A.M.C., attached Royal Fusiliers.
Capt. G. J. Linklater, R.A.M.C.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war :—

Second Lieut. R. A. Patterson, Rifle Brigade, second son of Dr. C. S. Patterson, of Eastbury, Berks.
Lieut. B. Rundle, Australian D.A.C., youngest son of the late Dr. G. E. Rundle, of Creewood, Sydney, Australia.
V. E. J. Bristowe, R.A.M.C., attached East African Expeditionary Forces, youngest son of the late Dr. J. S. Bristowe, F.R.S., of London.
Capt. T. W. Martin, R.A.M.C., attached Royal Scots, younger son of the late Dr. W. Y. Martin, J.P., of Walkden, near Manchester.
Capt. K. J. Barrett, Royal Fusiliers, elder son of Lieut.-Col. J. W. Barrett, C.M.G., R.A.M.C., of Melbourne, Australia.
Capt. J. J. Weaver, R.A.M.C., elder son of the late Dr. J. Weaver, of Southport.
Lieut. W. D. Chepmell, Royal Sussex Regiment, son of Dr. C. Chepmell.
Second Lieut. H. C. Oulton, Leinster Regiment, second son of Dr. H. W. Oulton, of St. Stephen's Green, Dublin.

FOREIGN DECORATIONS.

By the King of the Belgians.

Ordre de la Couronne.—Officier : Capt. S. R. Douglas, late Indian Medical Service, St. Mary's Hospital, London; Temp. Col. Sir A. E. Wright, C.B., Army Medical Service, St. Mary's Hospital, London. *Chevalier :* Temp. Lieut. E. Shaw, R.A.M.C.

By the King of Serbia.

Order of the White Eagle, 4th Class.—Lieut.-Col. E. T. F. Birrell, C.M.G., R.A.M.C.; Maj. M. J. Cromie, R.A.M.C.

By the Sultan of Egypt.

Order of the Nile.—3rd Class : Maj. R. G. Anderson, R.A.M.C., late Assist.-Adjt.-Gen., Recruiting Dept., Egyptian Army; Maj. W. Byam, R.A.M.C., late Medical Corps, Egyptian Army. *4th Class :* Capt. E. Gibbon, R.A.M.C., attached Medical Corps, Egyptian Army.

THE CENTRAL MEDICAL WAR COMMITTEE AND THE MOBILISATION OF THE MEDICAL PROFESSION.

Lord Derby's letter to the medical profession was the subject of discussion at a special joint meeting on Tuesday last of the Central Medical War Committee and the Committee of Reference of the Royal Colleges, when the following resolution was unanimously adopted on the motion of Sir Watson Cheyne, President of the Royal College of Surgeons of England, seconded by Mr. E. B. Turner, Chairman of Representative Meetings of the British Medical Association :—

That the Central Medical War Committee and the Committee of Reference cannot continue to bear the responsibility in the eyes of the medical profession and of the community for protecting the medical needs of the civil community while meeting the requirements of the Army unless they still have the duty of deciding how many doctors and which individuals can in fact be spared at any given time from civil work in a particular place to enter military service, and that, therefore, unless the War Office will undertake not to grant any commission to a doctor, even though volunteering for service, whom the committees consider to be for the time being indispensable for civil work, the committees will be unable to take any further part in the selection of doctors for military service.

Copies of the resolution were sent to the War Cabinet, the Secretary of State for War, and the Director-General of the Army Medical Service.

The reasons which have led the Central Medical War Committee to take this step are given at length in a statement, dated April 25th, a copy of which was sent to Lord Derby and which was issued later to the press.

In order to make the position plain the Central Medical War Committee conceives it to be its duty to the civil community to place on record a statement of the reasons which lead the Committee, in virtue of its special knowledge gained from the work it has done, statutory and otherwise, for the Government, to the conclusion that, unless special precautionary measures are adopted, the immediate calling up of all doctors under 41 for military service affected by the War Office must inflict grave injury on the civil community in many parts of the country, particularly in the industrial areas upon which so much depends, both as to the production of war material and otherwise, for the carrying on of the war.

It is obvious that, in order to avoid a breakdown in a locality, it is essential that before any doctor at present engaged in civil work is actually withdrawn from his duties, the question as to whether he can at the time safely be spared from civil work must have been properly investigated, to the extent required by the nature of the case, either by the Central Medical War Committee, or by some other body acting on behalf of the Government possessed of the knowledge requisite for gauging the needs of the locality.

Hitherto the Central Medical War Committee, aided by its local committees in all parts of the country, and in coöperation with the Government departments concerned, has performed this duty for the Government, watching continuously the varying conditions of the medical services in each locality, and determining from time to time, in the light of those conditions, how many and which doctors could be spared at any particular moment.

The notice issued by the Recruiting Department on Wednesday, April 18th, calling up all the doctors under 41 for immediate departure on service on April 28th threw the Committee's machinery entirely out of action, and, although it would seem from certain phrases in Lord Derby's letter published subsequently that some revival of the former arrangements with this Committee is contemplated, it is clear that nothing short of a Government decision to maintain the complete continuance of the requisite scrutiny will suffice to avert grave danger.

The following places may be mentioned as illustrating the dangers which, in the absence of such scrutiny, must inevitably arise in many areas :—Town *A* (chemicals and munitions). Population over 20,000. Number of doctors 4, all of military age. Town and district *B* (shipbuilding). Population over 60,000. Number of doctors 10, 7 of military age. District *C* (coal-mining). Population over 37,000. Number of doctors 7, 6 of military age. District *D* (agricultural area). Population (of town alone) 3628. Two doctors, both of military age. Town *E* (country town). Population over 20,000. Number of doctors 4, 3 of whom are of military age. Town district *F* (industrial area). Population about 126,000. Number of doctors 25, of whom 4 are of military age. There is at present only one doctor to over 5000 people.

It is clear that from none of these areas could all the doctors liable under the Military Service Acts be withdrawn simultaneously without complete breakdown. But under the arrangements so far made in connexion with the immediate calling up of the doctors there is nothing to secure that these men will not in fact be withdrawn.

Doubtless the War Office, if aware of the facts, would not propose to take all the doctors from the town *A* and leave a population of 20,000 in a munition area entirely without any medical practitioners to look

after them. But the War Office is not in possession of the knowledge requisite for avoiding the mistake, nor is it possible for any general or mathematical rules to be formulated for such purpose. The necessary safeguards can only be applied by a body which is continuously surveying the needs and the comparative conditions of the various localities.

It is clear, the statement concludes, that if the situation above indicated is to be avoided, as the Government must obviously desire to secure, it must be definitely provided that no doctor, even if he himself offers no objection to going, shall be withdrawn by the War Office from the work of the civil community until the competent body authorised by the Government has ascertained and reported that his departure will not cause a breakdown.

Lord Derby's Reply to the Committee.

The reply received from the Secretary of State for War bearing the same date as the covering letter enclosing the Central Medical War Committee's resolution and statement was to the following effect:—

War Office, London, S.W. 1, April 25th, 1917.

GENTLEMEN,—I am in receipt of your letter of April 25th, and in answer to it I beg to state that I agree that the procedure prevailing up to last week with regard to the selection of doctors shall be continued, and I will further agree not to give a commission to any doctor except on the recommendation of your Committee.

Your Committee is asked to provide the Army with x doctors by May 1st, and y doctors per week after that date until the requisite number z has been found. In the event of the number so asked for not being forthcoming, I must reserve to myself the right at any time to reconsider the position.

I trust that this arrangement will be agreeable to your Committee, and that they will continue doing the excellent work for the War Office that they have done in the past. Yours faithfully,

(Signed) DERBY.

The Text of Lord Derby's Letter to the Medical Profession.

The text of the letter addressed by the Secretary of State for War to members of the medical profession in Great Britain was as follows:—

War Office, London, S.W. 1, April 21st, 1917.

SIR,—I am desired by the War Cabinet to ask your earnest consideration of the following matter. The enemy, in total disregard of the accepted tenets of civilised warfare, have deliberately instituted a submarine campaign against hospital ships. It has therefore become essential that a large number of hospitals should be established overseas in the various theatres of war for the treatment of the sick and wounded.

In order to allow of this being done, and done with great rapidity, it has become essential to secure the services of every member of the medical profession who can possibly be spared from this country. The figures in the possession of the Government make it plain that the number of doctors who could be spared from this country are more than are needed to supply the military requirements if adequate steps are taken, by the doctors over age or by other means, for doing the work in this country of the men who must now be taken for medical service overseas. For these reasons the War Cabinet have decided, as the first step in this process, that every medical man of military age must be called up at once under the Military Service Acts, in order that he may thus be made available at once, and that, if he cannot be spared from his locality without arrangements being made for carrying on his work, his case may be immediately investigated and decided upon and steps taken for securing a substitute for that work.

Every medical man thus summoned must, therefore, communicate immediately to the Central Medical War Committee (or the Scottish War Emergency Committee) if he is of opinion that circumstances (personal or public) make it impossible for him to go, e.g., that he can only be spared from his present duties when some arrangements have been made for doing his present work. May I express the earnest hope that every doctor over military age will immediately offer his services to the Local Medical War Committee of his area as willing to undertake any substitution work within his capacity which would help to release any man of military age who cannot otherwise be spared?

The War Cabinet recognise to the full the great services that the medical profession has rendered during the present war, and regret that the barbarous action of the enemy compels a further call on their services and a resort by the Government to measures which the Army Council had intended to avoid and could still have avoided but for this new phase of German outrage. They recognise that the new procedure must involve additional sacrifices for the people of these islands, and must fall heavily on the medical profession. But the War Cabinet trust and believe that this call will be met in the same splendid spirit with which previous calls have been met, and that members of the medical profession and the public whom they serve will ungrudgingly make whatever sacrifices may be necessary in order that our soldiers abroad may have the same attention and care which medical science provides for their comrades at home.

I am, Sir, your obedient servant,

(Signed) DERBY.

THE NATIONAL MEDICAL UNION AND MEDICAL MOBILISATION.

We have received from the National Medical Union a communication, signed by the chairman of the council and of the executive committee, welcoming that portion of Lord Derby's letter which states his determination to call up immediately all medical practitioners of military age, but objecting to non-panel practitioners being asked to attend patients under the National Insurance Act. The alternative is stated thus:—

While the simplest, and therefore the best, means for utilising the services of the whole profession at this juncture would, in our opinion, be the abrogation during the war of the Medical Benefit Section of the National Insurance Act, an emergency measure for the remuneration on non-panel lines of non-panel practitioners called upon to attend Insured persons could, we believe, be devised with the funds now at the disposal of the National Health Insurance Department. It would be based upon the sound principle of payment for work actually done and would involve the allocation of no additional public money or instant disturbance of the Act.

THE WAR AND HOSPITAL SHIPS.

The sinking of hospital ships by the enemy continues. On April 17th the s.s. *Donegal* and the s.s. *Lanfranc* were torpedoed without warning. The *Donegal* was carrying slightly wounded cases, all of them British, out of whom 29 men and 12 of the crew are missing. The *Lanfranc*, in addition to 234 wounded British officers and men, carried 167 wounded Germans, a medical personnel of 52, and a crew of 123. Of these, 2 wounded British officers, 11 wounded British of other ranks, 1 R.A.M.C. staff, 5 crew, 2 wounded German officers, and 13 wounded Germans of other ranks are reported missing and presumed drowned. British patrol boats rescued 152 wounded German prisoners. The vessels were under escort, and one of them bore the distinctive marks laid down by the Hague Conference. The Admiralty announce that in future ships carrying wounded will bear no distinctive markings, and will proceed at night without lights, inasmuch as the prescribed markings now serve only to make the ships a better target for the enemy.

The International Red Cross Committee at Geneva has addressed a protest to the German Government in reference to its order of Jan. 29th regarding the sinking of hospital ships and the sequel to this order:—

The International Committee, whose right and duty it is to enforce respect for the principles of the Red Cross and the Geneva Convention by reporting violations of them, draws the very serious attention of the German Government to the responsibility which it would assume towards the civilised world by persisting in a resolution which is in contradiction to the humanitarian conventions which it has pledged itself solemnly to respect.

In torpedoing hospital ships it is not attacking combatants, but defenceless beings, wounded or mutilated in war, and women who are devoting themselves to the work of relief and charity. Every hospital ship is provided with the external signs prescribed by international conventions, the use of which has been regularly notified to belligerents, and should be respected by belligerents. The latter may, according to the Hague Convention, exercise the right of search, but have in no case any right to sink a ship and expose to death the hospital staff and the wounded.

The *Asturias* appears to have been torpedoed without any care having been taken to ascertain her character or her destination. Even if the correctness of the facts were admitted upon which Germany bases justification of her order, the International Committee considers that nothing can excuse the torpedoing of a hospital ship, and expresses the hope that such an order, contrary to international conventions, will cease to be carried out.

MEDICAL MOBILISATION IN AMERICA.

A practical spirit pervades the preparations which are being made by the medical profession in America for the emergencies of war. A recent number of the *New York Medical Journal* states the statistical side of the problem:—

Our regular army now numbers 125,000 men, and the National Guard about 160,000. If recruited to full war strength they would number 280,000 and 440,000 respectively, or a total of 720,000. For this army some 5000 medical officers would be required. In addition to this we have another army of 500,000 called to the colours for training, making a first line defence of 1,220,000 men. In addition, it is expected that at least a million and a half more troops will be called out during the year for training, making a total of 2,720,000 troops under arms. Such an army would require 19,000 medical officers. We now have in the regular army about 1200 medical officers and in the National Guard about as many more, leaving about 2400 officers, and leaving a deficiency of 16,600 medical officers to be supplied from civil life. In view of the fact that we have in the United States only 145,000 registered physicians, it will be seen that the new army will face a deficiency in a direction in which it will be difficult to improvise aid.

On the basis of the latest figures the number of registered medical men in the United States in 1916 was 145,241 and in the dependencies 1372, while the number of students qualifying during each of the last two years has been in the neighbourhood of 3000. With 3000 young men on the point of graduating and 2500 senior students, in addition to a large number of recently qualified men holding hospital appointments or just started in practices, the deficiency of 16,000 medical officers can in large part promptly be made good. The majority of these men will be in a

position to join one or other branch of the medical service, while senior men will be required to fill places in the special branches of preventive medicine which form an essential part of the modern medical service. Special arrangements have been made excusing senior students on enrolment the completion of their current term of study.

The whole medical service of the war will be carried on under the supervision of the Council of National Defence, a body created last August to secure the effective coördination of industry and material resources in the interests of national security and welfare. The Council consists of the Secretaries of State for War, the Navy, the Interior, Agriculture, Commerce and Labour, assisted by an Advisory Commission (nominated by the Council) of seven civilians appointed by the Federal President. Each member of the Commission appoints a committee or board representative of the activities for which he is responsible. The medical representative is Dr. Franklin H. Martin, who presides over a committee the other members of which are Surgeon-General William C. Gorgas, U.S. Army; Surgeon-General William C. Braisted, U.S. Navy; Surgeon-General Rupert Blue, Public Health Service; Colonel Jefferson R. Kean, Director-General of Military Relief of the American Red Cross; Dr. William H. Welch, member of the National Council of Research; Dr. William J. Mayo, chairman of the Committee of American Physicians for Medical Preparedness; Dr. Frank F. Simpson, chief of the Medical Section of the Council for National Defence and Secretary of the Committee of American Physicians for Preparedness. This medical committee owes its inception early last year to the joint action of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and the American College of Surgeons. It has already done much excellent work, including the selection of some 20,000 medical men classified according to their training and the kind of work for which they are best fitted. In order to facilitate the examination of recruits and release officers of the regular Army from such work a board of officers from the Medical Officers Reserve will be in session at the New York Academy of Medicine to examine candidates for the medical services and initiate them in the details of this work.

The preparatory work of organising and equipping base hospital units was taken in hand by the American Red Cross some months ago, and 22 units are now ready for service at any moment, while 7 others are on the point of completion. Each hospital will contain 500 beds. There have been enrolled 3000 trained nurses for active service, and more than 1000 medical men, as well as over 4000 women with an elementary knowledge of first aid and hygiene, who will be able to assist the trained nurses. The first naval base hospital stationed at Brooklyn is equipped for 250 beds, and has been ordered to hold itself in readiness for active service.

The Rockefeller Institute is experimenting with a portable military hospital unit with accommodation for 200 patients to be used as a surgical clinic. It is proposed to place it in the charge of Dr. Carrel and Dr. Dakin to assist in the introduction of the methods of these surgeons as carried out in the French military hospitals.

THE WAR REFUGEES' DISPENSARY.

The Committee of the War Refugees' Dispensary, which has recently been closed, has sent in its final report to the War Refugees' Committee, of whose work it formed a branch and by which it was financed. Instituted in October, 1914, by four English and three Belgian doctors, with the assistance of a Voluntary Aid Detachment, this dispensary continued its activities at 265, Strand, London, W.C., as an out-patient department for refugees until early in the present year, when, owing to progressive difficulties both in staffing and financing, it was closed and the work handed over to the Government Dispensary in Sheffield-street, W.C. During the two-and-a-quarter years of its existence nearly 29,000 consultations and treatments were given with a daily average of 52 attendances. Medical cases predominated, but a considerable proportion of surgical, skin, nose, throat, ear, and other affections were dealt with. Patients to the number of over 400 requiring treatment beyond the scope of the dispensary were passed on to out-patient departments of suitable hospitals, and 124 placed as in-patients. Besides this over 1200 introductions for ophthalmic treatment were given, and 420 pairs of spectacles supplied free or partially free. Upwards of 1000 dental cases were treated by a private dentist, who most liberally and kindly placed his services at the disposal of the Committee, and nearly 500 received hospital treatment. Artificial teeth and repairs, free or assisted, were granted to 63 people, and in the same way nearly 600 surgical appliances have been provided. With a few exceptions medicines were dispensed on the premises, nearly 20,000 prescriptions having been made up, at an average cost of 4¾*d.* each. As the whole of the English staff and some of the Belgian gave their services free, the dispensary was enabled to exist upon a comparatively modest income. The premises were kindly lent free of rent for some months, and then at a reduced rate; drugs were latterly one of the heaviest items of expenditure, costing £240 during 1916. The total expenses of the dispensary for the 27 months of its existence barely exceeded £1800. An important branch of the work was that of providing doctors to visit refugees who were too ill to come to the dispensary. In the earlier months there was a certain number of Belgian doctors available in London who could do this work, and when they were not available English practitioners visited the Belgian patients in their own neighbourhoods, but in view of the general shortage of doctors the provision of domiciliary treatment was always attended with difficulty.

THE TRAINING OF THE DISABLED SOLDIER.

Several weeks ago it was stated that the Ministry of Labour was collaborating with the War Pensions Statutory Committee in setting up Trade Advisory Committees, on which both employers and employed were to be represented, to deal with the training and employment of disabled men in various trades. In Lancashire, where a county authority is dealing with the same question, the movement has, up to the present, taken the form of collecting information from all the education authorities in the county with regard to the facilities which they would be able to offer for training men in various industries. This information has been tabulated and will shortly be circulated to all the Local Pensions Committees for their use. It is hoped that the whole of the cost will be met by the Pensions Ministry and that no education authority will hesitate to accept men from any part of the county.

MEDICAL MEN OF MILITARY AGE IN IRELAND.—The Council of the Irish Medical Association have passed the following resolutions:—

1. The Council of the Irish Medical Association consider that it is unfair and dangerous, from a public health point of view, for the authorities to refuse sanctioning temporary appointments of medical men of military age in the country, where the services of men over military age cannot be procured.
2. The Council of the Irish Medical Association consider that the military authorities are not consistent in their action in refusing to employ medical men over 50 years of age for foreign service, although active and energetic, and in some cases well known operating surgeons, while they have given military home work to many men who are of military age.

GERMAN TREATMENT OF BRITISH PRISONERS OF WAR: A SCOTTISH RESOLUTION.—The Faculties of Medicine of the Scottish Universities, together with the Presidents and Councils of the Royal College of Surgeons of Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow, have issued a resolution recording—

Their condemnation and detestation of the neglect and inhumanity which characterised the conduct of certain members of the Prussian medical staff to whom the treatment of British prisoners of war was entrusted, especially in the internment camps at Wittenberg and Gardelegen, during outbreaks of typhus fever which had been largely provoked by overcrowding, insufficient food, and entire absence of all sanitary measures. The facts as stated in the recent reports of a British Government Committee, which are based mainly on the testimony of officers of the Royal Army Medical Corps, themselves prisoners of war, are of such a nature as to bring indelible disgrace upon the medical men concerned and upon the German Government, which remains ultimately responsible for the treatment meted out to prisoners of war. As members of a profession which has hitherto, in every quarter of the civilised world, been inaccessible to the shameful influences which make for barbarity in warfare, we are reluctantly forced to the conclusion that a spirit of gross inhumanity has not been absent from the Prussian Medical Service.

NEW MILITARY HOSPITALS.—A Red Cross hospital is to be established on the Millbay recreation ground at Plymouth. The hospital will contain 200 beds, in tents, and some adjacent buildings have been lent and will be used as dining and recreation buildings. The work is nearly completed; the cost of the equipment is estimated at £1750,

which is being raised by subscription. The medical men on the staff of the institution are Mr. E. Down and Dr. G. S. Earl.—Bigadon House, Buckfastleigh, Devon, was formally opened for the reception of patients on April 2nd. The institution contains 50 beds, and patients will be sent there from the American Women's Hospital at Paignton.—The Hon. Mrs. Smyth has given Ashton Court, near Bristol, as a military hospital. It will accommodate 120 beds.—The Torrington Voluntary Aid Hospital was recently formally opened. It contains 10 wards with 65 beds, and an additional 10 beds could be provided, should the necessity arise.—Colonel James Craig, M.P., has placed his residence, Craigavon, at the disposal of the military authorities as a home for neurasthenic soldiers. It will be worked in connexion with the Ulster Volunteer Force Hospital.

RED CROSS GIFTS.—More than £200,000 have been collected in the United Provinces of India for the provision of transport for the wounded by the Special War Fund inaugurated last year by Sir James Meston, Lieutenant-Governor of the United Provinces.—The Imperial Order of the Daughters of the Empire, Illinois, have sent a gift of £2000, and New Zealand has sent through the High Commissioner a sum of £963.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates were successful:—

Surgery.—R. W. Diggett, (Sections I. & II.), Philadelphia and London Hospital; D. R. Hearn (Section I.), Durham; T. F. Reason (Sections I. & II.), St. Mary's Hospital; F. A. Unwin (Section I.), Westminster Hospital; and L. J. Vincent (Sections I. & II.), Cambridge and St. Mary's Hospital.

Medicine.—G. W. Coombes (Sections I. & II.), London Hospital; F. A. Unwin (Section II.), Westminster Hospital; and C. G. G. Winter (Sections I. & II.), St. Mary's Hospital.

Forensic Medicine.—G. W. Coombes, London Hospital; and W. H. A. Pratt, Guy's Hospital.

Midwifery.—C. A. W. Chapman, Sheffield.

The Diploma of the Society was granted to the following candidate entitling him to practise medicine, surgery, and midwifery: C. G. G. Winter.

THE LATE JAMES HENTHORN TODD CONNOR, M.R.C.S., L.S.A.—The death of Mr. J. H. T. Connor took place at 1, Mulberry-walk, Chelsea, on April 16th, at the age of 75 years. He was the fourth son of Dr. William Connor, of New Wandsworth, whom he succeeded in practice, and a nephew of Professor Robert Bentley Todd, F.R.S. He was educated at King's College School and Hospital, where he was dresser to Sir William Fergusson. For many years he had an extensive general practice in New Wandsworth and its neighbourhood, holding various public appointments, including that of medical officer to the Battersea Training College. He leaves a wife and four children. His eldest son is Mr. Bentley Connor, whose portrait of the King has commanded attention.

MEDICAL MAGISTRATE.—Mr. Charles George MacVicker, B.A., M.B., B.Ch., B.A.O. R.U.I., has been placed on the commission of the peace for the county of Somerset.

THE LATE SIR JOHN HOWARD.—The name of Sir John Howard, the engineer philanthropist, who died on April 20th in his eighty-seventh year, is perpetuated in Brighton by two benefactions—the Howard Convalescent Home at Black Rock, which he built and endowed at a cost of £40,000 for ladies of limited means, but which on the outbreak of the war was handed over to the War Office for wounded soldiers, and a scheme for the building and endowing, at an outlay of £30,000, of 24 cottages as cottage homes for incapacitated nurses in memory of Nurse Cavell. He had previously founded the Howard Charity, which provides regular weekly assistance to a large number of old people.

DONATIONS AND BEQUESTS.—By will the late Mrs. Sarah Clayton Dawson, Upper Norwood, S.E., left £1000 each to the Convalescent Home, Enys-road, Eastbourne, and the London Homœopathic Hospital, and £450 to the Medical Missionary School in connexion with that hospital.—The late Miss Isabel Marion Briscoe, of Codsall, Staffordshire, has left £500 each to the Wolverhampton and Staffordshire General Hospital and the Wolverhampton and District Hospital for Women, £100 each to the London Hospital and the Brompton Consumption Hospital, and £50 to the Wolverhampton district branch of the Queen Victoria Nursing Association.—By will the late Mr. Thomas Wharrie, of Eton-avenue, Hampstead, N.W., has left £1000 each to the Royal Infirmary, Glasgow, the Western Infirmary, Glasgow, the Victoria Infirmary, Glasgow, the East Park Home for Infirm Children, and the Higginbotham Sick Poor Nursing Association.—The late Mr. Ernest Penrose Arnold, of Stilemans, Godalming, has by will made a large bequest to the Children's Sanatorium at Holt, Norfolk, or other sanatorium for the poor to be selected by his executors.

THE LATE CHARLES SINCLAIR THOMPSON, M.B., C.M. EDIN.—Dr. C. S. Thompson, consulting surgeon to Bideford Infirmary, died at his residence, Bideford, Devon, on April 9th. The deceased, who succeeded his father, had practised in Bideford and the district for over 40 years, retiring from active work a year ago. He was on the honorary surgical staff of the Bideford Infirmary and held appointments under the Bideford union for 35 years. Dr. Thompson, who was greatly respected in Bideford, leaves a widow and one son, a lieutenant in the Royal Engineers.

Dr. James Bertie Simpson has been appointed a deputy lieutenant of Sutherland.

CENTENARIANS.—Miss Charlotte Carlyon, who was born on Feb. 16th, 1815, died at Truro recently. Her cousin, Rev. P. Carlyon, died a few years ago at Falmouth, in his 103rd year.—Mrs. Eleanor Plaistowe died recently at Highgate, aged 102 years.

THE LATE DR. H. P. POTTER.—Henry Percy Potter, M.D. Durh., F.R.C.S. Eng., L.S.A., D.P.H. Cantab., who for 37 years was medical superintendent of the Kensington Infirmary, died on April 9th at the age of 63 years. He received his medical education at St. Thomas's Hospital and in Paris, qualifying L.S.A. in 1875. Three years later he obtained the F.R.C.S. Eng. by examination, and in 1893 he graduated M.D. at Durham University. He was also a D.P.H. of Cambridge. After holding house appointments at St. Thomas's Hospital he took up the resident appointment at the Kensington Infirmary which he held until his death. At one time he was president of the West London Medico-Chirurgical Society. Dr. Potter made several contributions to medical literature, the more important being a treatise on Gonorrhœal Rheumatism, its Nature and Treatment, published in 1878, and an account of the natural history of the "Voyage of the *Sunbeam*."

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, APRIL 19TH.

Health of Salonika Forces.

Answering Mr. DILLON, who asked what precautions were being taken to safeguard the health of the Army in the neighbourhood of Salonika during the summer months, Mr. BONAR LAW said: I can assure the House that the Government are fully alive to the difficulties and dangers in connexion with this matter, and are taking all possible steps.

Deaths at Kinmel Park Camp.

Mr. HAYDN JONES asked the Under Secretary for War what was the number of deaths amongst soldiers at Kinmel Park Camp, Rhyl, for the months of February and March and the causes of such deaths.—Mr. MACPHERSON replied: The answer is as follows:—

February: 1 officer, 15 men: Pneumonia 7, bronchitis 4, pleurisy 2, motor accident 1, died at Abergele of syncope 1, found dead in quarters (an officer) 1. March: 1 officer, 17 men: Pneumonia 6, cerebro spinal meningitis 4, bronchitis 1, pneumococcal meningitis 1, meningitis 1, dilated heart 1, hemiplegia 1, cancer of stomach 1, under anæsthetic 1, bomb wounds (an officer) 1.

Artificial Limbs for Disabled Soldiers.

Replying to Major CHAPPLE, Mr. BARNES (Minister of Pensions) wrote: A committee of experts exists for the purpose of advising as to the most suitable types of limbs for disabled soldiers, and as to the prices that should be paid for them. If it advises that the prices asked by the manufacturers are excessive, the question of a Government factory will be considered, but the main consideration which I have in view is not the cheapness of the limb but its efficiency.

Tuberculosis Treatment in County Meath.

Mr. P. WHITE asked the Chief Secretary for Ireland why the application of the Meath county council for £347 10*s.* (it being the only money received from the Treasury for the treatment of tuberculosis) had not been granted this year, as similar estimates were since the passing of the National Health Insurance Act, 1911; and whether the granting of the amount was recommended by the Local Government Board for Ireland.—Mr. DUKE wrote in reply:

The Treasury decided not to sanction this grant on the advice of the Local Government Board for Ireland, with which the Irish Insurance Commissioners agreed, that the arrangements for the treatment of tuberculosis in county Meath were not satisfactory.

MONDAY, APRIL 23RD.

Calling up Medical Men.

Mr. BROOKES asked the Under Secretary for War whether, in order to prevent difficulties arising by the withdrawal of medical service in any area, Insurance Committees or other authorities responsible for the public health would be allowed a right of appeal against the recent order calling up medical men similar to that accorded to individuals.—Mr. MACPHERSON replied: Each individual affected by the Military Service Acts has the right of appeal, and a medical man can appeal to a tribunal, who will refer his case to the Central Medical War Committee. The procedure as to the action which an Insurance Committee or other authority may take is being discussed by the departments concerned.

Venereal Disease Bill.

Mr. HAYES FISHER (Parliamentary Secretary to the Local Government Board) moved the second reading of the Venereal Disease Bill, the object of which is to prevent the treatment of venereal disease otherwise than by duly qualified medical practitioners and to control the supply of remedies therefor. The Bill has already passed through the House of Lords.[1] He said that the Bill was not a war measure. It, however, had this connexion with the war, that as the Royal Commission on Venereal Diseases reported, and as experience showed, after war outbreaks of venereal disease were likely to occur to men in districts which had been comparatively free from it. Although this Bill had been introduced he did not wish the House or the country to jump to the conclusion that there was any increase in this formidable disease. Except in regard to the Army, the Navy, and the police, there were no statistics available to show the extent of the disease, but if the deaths due to syphilis were taken the evidence would lead to the conclusion that the disease was stationary, or at all events it was not increasing. So far as the figures could be obtained, there was nothing to show that the ratio per 1000 in the Army had in any degree increased. But it was not necessary to try to prove any increase in the prevalence of venereal disease in order to prove the case for the Bill. Its prevalence was quite formidable enough. In 1916 there were 36,500 cases treated in the London Lock Hospital alone, and these had increased from 23,074 cases in 1913. As a result of the report of the Royal Commission, Mr. Long, when he was President of the Local Government Board, had circularised local authorities asking them to establish centres for the scientific diagnosis of the disease and for free and complete treatment. Ninety-nine out of the 145 local authorities who had been thus circularised had submitted schemes, and 61 of those schemes applying to a population of 19 millions had been approved.

Mr. KING: How many of the schemes are in actual operation?

Mr. HAYES FISHER: Most of them are in operation. Take the case of London. He had only the figures relating to six hospitals for the first three months of this year, and in them 1195 males and 350 females had been treated as new patients. It was remarkable in these times, when there was such pressure on hospitals and on the medical profession, that they had been able to submit practical schemes. He had great hopes that these schemes would rapidly mature and that the results from them would be, perhaps not all that could be possibly expected, but would be very substantial in gradually diminishing the prevalence of these diseases. The policy which was being adopted could be described as the maximum of persuasion with the minimum of penalty.

Need for Legislation.

Why, then, was legislation required? It was necessary as a complement to administrative action, and it would hasten the operation of that action. A policy was wanted to persuade the victims of these diseases to abandon quack methods of treatment and go to the centres where they would get sound and scientific methods of treatment. It was desirable to prevent the treatment of these diseases by methods which were specious, fallacious, and, indeed, pernicious. The Bill prevented the treatment of the disease otherwise than by a duly qualified medical practitioner, or the dispensing of any remedy except on the prescription of a medical man. Persons suffering from venereal diseases were a menace to the health of the community. Although the Bill rested on persuasion of the sufferers to seek proper treatment, that policy was retarded and hindered if they did not prevent quacks from carrying on their trade. The liberty of the individual had constantly to give way to the safety of the State. All statutes for the compulsory notification of infectious diseases interfered with the liberty of the individual, and this infringement of the liberties of the subject in this case was proposed to preserve the greater liberty of the community. The Royal Commission had no hesitation in stating that the effects of the unqualified practice as regarded venereal disease were disastrous. He was quite conscious of the limitations of the Bill, but in this campaign against venereal disease all forces—educational, moral, and spiritual—had to be brought to bear. In passing the Bill Parliament would be providing the country with legislation which was ancillary to the policy of persuasion.

Criticism of the Bill.

Mr. KING thought that the Bill should have been postponed until centres for free treatment were in operation in every part of the country. He deprecated any step which would confer a monopoly on salvarsan treatment at this stage.

Captain GUEST, whilst he supported the second reading, considered that the Bill did not go far enough to cope with the magnitude of the evil caused by venereal diseases. He went on to deal with the seriousness of these diseases in the Army. The Under Secretary for War had stated recently that the ratio was 43 per 1000. But in the aggregate that meant a very large total. Since the war began there had been admitted to hospitals in England over 70,000 cases of gonorrhœa, over 21,000 cases of syphilis, and over 6000 cases of soft chancre. All these men might with few exceptions be regarded as unfit for further military use. He thought that it would be no exaggeration to say that during the course of the war between 40,000 and 50,000 cases of syphilis and between 150,000 and 200,000 cases of gonorrhœa had passed through the hospitals in France. This showed how great was the magnitude of the evil and how ineffective were the proposals of the Bill for dealing with it. In his view two measures were necessary—the removal of temptation to the soldier and the subjection of civilians to compulsory detention and cure.

Sir WILLIAM COLLINS said that he could not help thinking that the legislative efforts of the Government had not been so fortunate as their administrative efforts. He was not quite sure—although he entirely agreed that the practice of the quack in cases of venereal disease was most pernicious and objectionable and from every medical and surgical point of view to be condemned—that he desired adventitious protection for the profession against the kind of practice which ought to carry its own condemnation. There was also the case of the tuberculosis quack and the cancer quack. He was not at all sure that the tuberculosis quack was not more shameful than the quack with whom they were now concerned, and that the cancer quack was not worse than either. If Parliament was going to put down unqualified practice at all, it would be better to put it down altogether rather than deal with this particular corner of it alone. At the same time he wished to recognise that the practice of medicine, though a science, was not an exact science, but a progressive science, and a science which should look for new life from any quarter from which it might proceed. The profession suffered rather than gained by association with the policeman and the gaoler in enforcing this prohibition, and he would rather see it rest on its own merits.

Mr. GLYN-JONES said that if the provisions of the Apothecaries Act were enforced against unqualified people who were to-day dealing with venereal disease nine-tenths of the evils which the present Bill was intended to hit would be removed. These provisions were not enforced. The Bill conferred on medical practitioners privileges which were not already possessed by them. The Bill was confined to venereal diseases, and it provided that the treatment should for the first time by law be limited to the medical profession, whilst allowing doctors, when treating other than insured persons, to buy and sell for profit to their patients any drugs or appliances which they might require. The pharmacists were not claiming too much when they said that if members of the medical profession were given the sole right to prescribe for patients who could not get treatment anywhere else the patients were driven to them, and the sole right carried with it the ability to usurp the functions of another profession and to make a profit out of buying and selling the remedies which were supplied to those patients.

Mr. DILLON considered that the Bill and the Criminal Law Amendment Bill were rather bad specimens of panic legislation. In his opinion the way to deal with the subject would have been to go at it first from the moral and economic side, and also to have set up a Ministry of Health, the necessity for which, he rejoiced to observe, had at last dawned upon the people of this country.

Sir H. GREENWOOD spoke of the number of Canadian troops who had gone through hospital for venereal disease. He hoped that steps would be taken to deal with such a situation, and that the Bill would go rapidly through the House of Commons. It was an earnest effort to deal with a disease which was largely due to lax administration in the past.

After some further consideration the Bill was read a second time.

[1] THE LANCET, 1917, i., 431.

TUESDAY, APRIL 24TH.

Public Health Administration in Scotland.

Mr. MACCALLUM SCOTT asked the Secretary for Scotland whether the recent utterances of the President of the English Local Government Board with regard to the establishment of a Ministry of Health had any application to Scotland; whether he had had under consideration any proposals which would involve the local administration of public health in Scotland from the town and county councils which were at present charged with it; and whether, before any such proposals were adopted, he would afford ample opportunity for their discussion in the bodies affected.—Mr. MUNRO replied: Although my noble friend's speeches have not referred to Scotland, any proposals affecting the machinery of government in relation to public health and its administration, of course, interest Scotland as well as England. I have received various suggestions in the matter which will receive my consideration. It is clear that any proposals implying such a change as my honourable friend describes could only receive effect by means of legislation which would afford ample opportunity of discussion.

Cocaine in Dentistry.

Mr. RAFFAN asked the Under Secretary for the Home Department whether it was proposed to extend the permit to unregistered practitioners in dentistry to use preparations containing not more than 1 per cent. of cocaine for a further period upon its expiry on April 30th; and, if so, to what date such extension would apply.—Mr. BRACE answered: The existing exemption will be extended for a further period of three months, and an Order will be made accordingly.

WEDNESDAY, APRIL 25TH.

Public Health Legislation in Ireland.

Mr. ARTHUR SAMUELS asked the Chief Secretary for Ireland (1) whether, with a view to the better and more economical enforcement of regulations by the Local Government Board in regard to epidemic and infectious diseases in Ireland, he would introduce a Bill extending the provisions of the Public Health (Prevention and Treatment of Disease) Act, 1913, to Ireland; and (2) whether, having regard to the representations of the medical profession in Ireland and the desirability of securing skilled treatment in cases of child-birth by properly qualified midwives, he would introduce a Bill for Ireland at an early date framed upon the lines of the English Midwives Act of 1902 and the Scotch Midwives Act of 1915.—Mr. DUKE answered: Bills have been drafted for the purposes mentioned in both these questions.

Calling up Medical Men.

Mr. PRINGLE asked the Chancellor of the Exchequer whether notices had been issued to all medical men of military age to report themselves for service at 9 A.M. on April 26th; whether the doctors so called up were to be required immediately to accept commissions and to be ready to join for service at 48 hours' notice on or after May 6th; whether in the case of doctors who refused to apply for commissions the recruiting officers were instructed to enlist them as privates in the R.A.M.C.; whether in view of these instructions steps were being taken for securing that the essential needs of the civil community were met in order that a serious breakdown in the medical service might be averted.—Mr. BONAR LAW replied: The calling up of these doctors is necessitated by the attacks on hospital ships, but the danger of the civil population being left without doctors is fully realised, and though all doctors of military age have been formally called up they will only be taken after consultation, which is now taking place between the Local Government Board and the National Health Commissioners.

Mr. PRINGLE: Will the right honourable gentleman give an assurance that where a man is willing to accept a commission, even if he accepts it, he will not be taken away without consultation with those authorities?—Mr. BONAR LAW: That is the substance of the answer I have given. The whole subject is being considered from all these points of view.

Sir W. ESSEX: Will the right honourable gentleman consider the subject of replacing these medical men by others who will be presently liberated from employment owing to the probable closing up of military hospitals in this country in consequence of the transference of patients?—Mr. BONAR LAW: The National Health Insurance Commissioners and the Local Government Board are fully alive to that, and realise that the problems can only be satisfactorily met if men over military age will undertake part of the duties.

Commander WEDGWOOD: Will the right honourable gentleman see that the Ministry of Munitions is also consulted on the question, seeing that doctors are very important in connexion with the manufacture of gas and in connexion with steel works?—Mr. BONAR LAW: I can assure the House that the whole subject is being thoroughly gone into from the point of view of making the best use of the material available. In the view of the Government, and I am sure that it is the view of the House also, the wounded must have the first claim.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL, Boscombe Branch.—House Surgeon. Salary £125 per annum and extras, with board, &c.

BRISTOL ROYAL INFIRMARY.—House Physician and House Surgeon. Salary at rate of £120 per annum, with board, &c.

BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, &c.

BURY AND DISTRICT JOINT HOSPITAL BOARD.—Assistant to Medical Superintendent. Salary £250 per annum, with board, &c.

CAMBERWELL INFIRMARY, Brunswick-quare.—Two Locum Tenens Assistant Medical Officers. Salary £7 7s. weekly, each with board, &c.

CHESTER ROYAL INFIRMARY.—Assistant House Surgeon. Salary £150 per annum, with board, &c.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—Two House Surgeons. Salary £200 per annum, with board, &c.

GREENWICH UNION INFIRMARY AND WORKHOUSE.—Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, rations, &c.

HARROGATE INFIRMARY.—Resident House Surgeon.

KENT COUNTY COUNCIL.—Tuberculosis Officer. Salary at rate of £500 per annum.

LEEDS PUBLIC DISPENSARY.—Second Female Resident Medical Officer. Salary £200 per annum, with board, &c.

LEICESTER ROYAL INFIRMARY.—Two Resident Surgical Officers. Salary £250 per annum, with apartments, &c.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Temporary Anæsthetist two days a week for about two or three hours. Salary 25 guineas per annum.

MANCHESTER ROYAL INFIRMARY.—House Physician. Salary £200 per annum, [illegible] Operating, &c.

MANCHESTER [illegible] SANATORIUM FOR TUBERCULOSIS.—First Assistant Medical [illegible] unmarried. Salary £350 per annum, with board, &c.

MANCHESTER, CITY OF.—Temporary Assistant Tuberculosis Officer. Salary £400 per annum.

NOTTINGHAM CHILDREN'S HOSPITAL.—Female House Surgeon. Salary at rate of £200 per annum, with board, &c.

NOTTINGHAM CITY ASYLUM.—Locum Tenens. Salary £7 7s. per week, with board, &c.

NOTTINGHAM GENERAL HOSPITAL.—Two Assistant House Surgeons for six months. Salary at rate of £250 per annum each, board, &c.

NOTTS COUNTY COUNCIL.—Second Assistant Tuberculosis Officer. Salary £400 per annum.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer. Salary £120 per annum, with board, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green.—Temporary Anæsthetist. Salary £50 per annum.

RHONDDA URBAN DISTRICT COUNCIL.—Dental Surgeon. Salary £300 per annum.

ROCHESTER, ST BARTHOLOMEW'S HOSPITAL, Kent.—Senior Resident House Surgeon. Salary at rate of £300 per annum, with board, &c.

ROTHERHAM HOSPITAL.—Junior House Surgeon. Salary £150 per annum, with board, &c.

SHEFFIELD ROYAL INFIRMARY.—House Physician. Salary £120 per annum, with board, &c.

SOUTH LONDON HOSPITAL FOR WOMEN, South Side, Clapham Common, S.W.—Female Anæsthetist on Tuesday afternoons. Salary 10s. 6d. per attendance.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Ophthalmic Surgeon.

WEST RIDING OF YORKSHIRE.—Two Temporary School Medical Inspectors. Salary £320 per annum.

Births, Marriages, and Deaths.

BIRTHS.

LEWIS SMITH.—On April 18th, at Bank House, Pembroke Dock, the wife of Surgeon F. Lewis Smith, R.N., of a daughter.

REYNOLDS.—On April 4th, at Shameen, Canton, China, the wife of Dr. W. Graham Reynolds, of a son.

WALTON.—On April 23rd, at Devonshire-street, W., the wife of A. J. Walton, F.R.C.S., of a son (still-born).

MARRIAGES.

CLEMENTS—JONES.—On April 17th, at St. Hilary's Church, Wallasey, Captain William Leitrim Clements, R.A.M.C., to Dorothy Melangell, only daughter of the late Rev. Owen Jones, Rector of Nantglyn, Denbigh, and niece of Mrs. W. R. Roberts, of Rolleston-drive, Wallasey.

CRAWFORD—JACKSON.—On April 17th, at Cloves Parish Church, Vincent James Crawford, D.S.O., Lieutenant-Colonel, R.A.M.C., to Ellen Kathleen (Eileen), eldest daughter of the late Samuel K. Jackson and Mrs. Jackson, Cara, Cloves, co. Monaghan.

DEATHS.

MARTIN.—Killed in action on April 9th, Captain T. W. Martin, R.A.M.C., M.O., attached Royal Scots.

SADLER.—Killed in action on April 17th, Captain Vyvyan Kendall Sadler, R.A.M.C., aged 38.

SCUDAMORE.—On April 17th, after a short illness, Lieutenant L. G. Scudamore, R.A.M.C.

WEAVER.—Killed (the result of a riding accident) at Curragh Camp, Ireland, on April 20th, while serving as Captain R.A.M.C., John James Weaver, M.R.C.S. Eng., L.S.A., D.P.H. Camb., Medical Officer of Health for County Borough of Southport, elder son of the late James Weaver, M.D., of Southport, aged 56.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SALT IN THE DIET.

Mr. William Mugfur, of Colan, Cornwall, who is in his 100th year, and who is probably the oldest active farmer in England, recently informed a correspondent of the *Daily Express* that, in his belief, to eat plenty of salt was a good thing if one wanted to live to a good old age. The use of salt in the diet has always been more or less a controversial matter. In 1748 a scientific experimenter, Dr. William Brownrigg, of Cumberland, published a valuable book on the "Art of Making Common Salt." In 1822 the author of the "Art of Invigorating and Prolonging Life," who disguised himself as "The Author of 'The Cook's Oracle,'" but who is known to have been Dr. William Kitchiner, famous for his dinner parties, stated in his quaint little book that—

> "Salt is *aliorum condimentorum, condimentum*, and the most salubrious and easily obtainable relish which Nature has given us to give sapidity to other substances; and has this advantage over all other Sauces, that if taken to excess—it carries its remedy with it in its aperient quality." He adds: "We suspect that most mischief is done by the immoderate and constant use of the Common Condiments. We have seen some puritanical folks who are for ever boasting that they never touch Made Dishes, &c. (one would suppose they had the Tongue of Pitylius), so be-devil every morsel they put into their Mouth—with Pepper and Mustard, &c., that they made their common food ten times more piquante—than the burn-gullet Bonne Bouche of an eastern Nabob, or a Broiled Devil carves whelped in veritable Sauce d'Enfer."

Dr. Kitchiner includes the following footnote explaining his the allusion to the Tongue of Pitylus:—

> "This gentleman had so cold a Stomach (saith Suidas), that he made a sheath for his Tongue, that he might swallow down his Pottage scalding hot; yea, I myself have known a Shropshire Gentleman of the like quality." (This footnote seems to have been extracted from Dr. Muffett on Food, 4to, 1655, p. 237.)

In 1699 England imposed a duty on salt which was revived on the motion of Sir Robert Walpole in February, 1732, increased to 15*s.* a bushel in 1805, reduced to 2*s.* in 1823, and abolished in 1825. Salt for the fisheries was free of duty. In the "eighties" there arose again a good deal of controversy in this country as to the injuriousness of eating common salt, and a book on the History of Salt was published in 1881 by Mr. E. M. Boddy, F.R.C.S., to uphold the eating of salt, but some of his arguments in its favour were thought by reviewers to be too enthusiastic. However, in 1883, THE LANCET referred editorially to the popular statements as to the injuriousness of common salt and commended its judicious use. Books condemning the use of salt have also been published by industrious compilers of public opinion on the subject. Salt and saltless diets have been both recommended with some amount of strenuousness, but Dr. Kitchiner's quotation from Colman may be referred to here:—

> "Man differs more from Man
> Than Man from Beast."

In THE LANCET of 1907, under the title of "Chloride of Sodium in Heart Disease," we quoted the opinion of an author who asserted that the average individual consumed far too much salt, and we then said that—

> "Many people imagine that salt is a prophylactic against ill-health and that they cannot well consume too much of it. With delicate people, however, the habitual ingestion of more salt than is required by the system is sure to produce ill effects. The amount of salt that can be consumed daily with safety depends upon the constitution of the individual."

Years ago medicinal treatment was tried by many medical men of administering sodium chloride in cholera, phthisis, typhoid and other fevers, and in parasitical diseases. The most favourable results seem to have been obtained in the treatment of fevers by administering graduated doses. In more recent times common salt is claimed to be beneficial in leprosy, but deleterious in epilepsy and in diseases of the kidney. In 1902 THE LANCET commented on the question whether 80 grains of salt per gallon in potable waters and for domestic supply purposes was objectionable. On the whole the idea that salt prolongs life is a fallacy, but the opposite view is sure to be held by not a few who studiously avoid it as an addition to diet.

THE DRINK QUESTION.

IN common with other countries England has been compelled to safeguard the efficiency of its army by the drastic regulation of the sale of intoxicants. The two burning questions of the moment, State purchase and the nationalisation of the liquor traffic, are discussed in *The Alliance Year Book and Temperance Reformers' Handbook for 1917* (edited by G. B. Wilson, B.A. Lond., Howard Medalist, Royal Statistical Society; published in London and Manchester by the United Kingdom Alliance, price 1*s.* net) by the Rev. Principal Denney, D.D., and Mr. Edward Wood, J.P., respectively. The editor contributes an article on Alcoholic Liquors and Foodstuffs, while short notes deal with the food-supply of the United Kingdom, prohibition, and the liquor trade finance. Figures and diagrams supplement a formidable array of facts.

A KIDNEY AND ABDOMINAL PROTECTOR.

Dr. John Campbell, of Belfast, has called our attention to a garment to protect the lower part of the trunk designed by Lady Angela Adair, of Dunadry, Co. Antrim, and consisting of a shaped band of flannel about 36 inches long and 12 inches wide at the waist, with a narrower band passing between the thighs, which can be readily adjusted. The designer believes that the protector will prove useful in preventing exposure to cold, and that it will add to the comfort and health of those who wear it. The makers are Messrs. Robert McBride and Co., of 20, Alfred-street, Belfast.

ECONOMY IN RUBBER GLOVES.

Messrs. W. & A. Bates, Limited, of St. Mary's Mills, Leicester, have written with reference to the letters which have appeared on this subject, and have sent us some actual figures of the saving effected by some of the hospitals which send their damaged gloves to be repaired by the electric vulcaniser.

—	Gloves repaired during 12 months.	Cost of repairs.
		£ *s.* *d.*
London Hospital, Whitechapel road	1281	18 7 3
1st Eastern General Hospital, Cambridge ...	1741	28 4 0
War Hospital, Croydon	864	15 3 2
District Infirmary, Ashton-under-Lyne ...	563	10 2 6
3rd London General Hospital, R.A.M.C., Wandsworth	593	9 0 10
Queen's Hospital, Birmingham	950	17 8 6

Total gloves repaired during 12 months.	Total cost of repairs.	Cost of same number of new gloves at an average price of 2*s.* per pair.	"Apparent" or maximum saving effected.
6042	£98 6*s.* 3*d.*	£302 2*s.* 0*d.*	£203 15*s.* 9*d.*

Hospitals which send all their damaged and worn-out gloves to this firm for repair receive scrap prices for any gloves which are considered to be past repair.

"MONKEY" NUTS AS A FOOD.

To the Editor of THE LANCET.

SIR,—There seems to be now an increased sale of "monkey" nuts, and I observe that the price, which in peace time was 1*d.* a pint, has now reached 3*d.* a pint in some places. I bought a pint of these nuts and found that in the shells they weighed 5 oz. and the yield weighed 3¼ oz. At 3*d.* a pint this equals 1*s.* 3*d.* per pound for the "nuts," and at 2*d.* a pint equals 10*d.* a pound. In some places they are sold at 6*d.* a pound shelled. I ground up the seeds, of which there are one, two, or three in the shell, in a mincer, and mixed the minced nuts with an equal quantity of flour and a little sugar and baked as a flat cake. I have come to the conclusion that 1 part of nuts to 3 parts of flour would have been better, as the cake was too oily and rich and produced in three people a slight feeling of nausea and a desire to drink half a pint of water immediately. I have also eaten the peanuts unbaked and experienced the same urgent desire to drink. I remember seeing installed on the counter in London licensed victuallers' establishments a few years ago what were, I believe, American machines like urns for supplying by a penny-in-the-slot arrangement a small quantity of these "nuts" shelled. There seems to have been method in this attention paid to customers. In grinding up the nuts a moderate quantity of clear thin oil is obtained, something like olive oil. I learn that this arachis oil is used in the East instead of olive oil in cooking and for making ointments, liniments, and plasters, and as a substitute for cod-liver oil. The name *Arachis hypogœia*, which is interpreted as "without a backbone" and "under the earth," refers to the strange power of the plant of forcing the fruit or pods as they increase in size into the earth, where they ripen their seeds, thus accounting for the English names of "ground-nut" and "earth-nut," and sometimes "pea-nut" and "underground kidney-bean." The shells, when ground up in a small mill or mincer, make a very light-weight dry bran-like substance, which answers well for stuffing cushions instead of bran. I have seen public places strewn with "monkey" nut shells, but they could be made use of in this

way. When immersed in boiling water some of the ground shell sinks and some floats, but it does not dissolve.

I am, Sir, yours faithfully,

London, April 16th, 1917. OBSERVER.

* * Another South American name for the "monkey" nut is "Cacahuate," which evidently accounts for the common French names of "Cacahuète" and "Cacahuate," although other French names are "Arachide" and "Pistache de terre." The German names are "Erdnuss," and for the oil "Katjangöl," evidently a corruption of the East Indian Katchung oil. It is also claimed that from these oily nuts a kind of inferior chocolate may be made; the oil, however, is said not to "keep" well, but soon to become rancid.

In a recent handbook on Brazil by J. C. Oakenfull is the following paragraph:—

Pea-nuts (*Amendoim*). These kernels yield 50 per cent. of oil, and the shells contain 85·48 per cent. of cellulose. The residue of the crushed nuts forms an excellent feeding cake for cattle, containing more than 31 per cent. of albuminoids, 11 per cent. of oil, and 31 per cent. of starch and saccharine matter. The plant thrives only in a limestone district, or in soils where an abundance of calcareous matter has been added. It should be planted in rotation with tubers or maize. In favourable circumstances 2½ tons of nuts to the acre is not an out-of-the-way crop. —ED. L.

"MEDICAL PRACTITIONERS AND IMPERFECT OPERATIONS."

UNDER the above heading the *Western Morning News* has quoted recently the report of Mr. J. F. Fry, in reference to tonsils and adenoids in the Exeter division, presented by him to the Devon Education Committee:—

I am convinced that the school medical inspector should, with regard to all defects, only send notices to parents in those cases where the deficit is so very marked that the medical attendant cannot do otherwise than endorse the verdict. There is an undoubted disinclination on the part of many practitioners to fall foul of the school medical inspector if possible. In four or five instances parents complained that my promise was not fulfilled, as their children had not benefited by the operation, and the result was that all other cases refused treatment in those places. Examination showed that the local practitioner in one case had taken a small slice of the tonsil, in another had removed one tonsil only, and had not touched the adenoids. The moral is, that while some general practitioners remove tonsils and adenoids as well as a specialist, it would be wiser that all cases should be treated by a skilled operator, and I think that all ought to go to hospital.

I.M.S. (P. & O. S.N. Co.) is thanked for his communication but has omitted to enclose his card.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, May 3rd.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—H. Russell Andrews, T. G. Stevens): at 8 P.M.

Annual General Meeting.—Election of Officers and Council for Session 1917-1918.

Specimens:

Mr. Gordon Ley: Spontaneous Rupture of Uterus.

Mr. T. G. Stevens: Decidual Reaction in a Polypus.

Short Communication:

Mr. Gordon Ley: Decidual Reaction in a Uterine Fibroid.

Papers:

Mr. J. D. Malcolm: Post-operative Tympanites: its Nature, and Some Points in its Treatment.

Dr. Cuthbert Lockyer: Ovarian Pregnancy.

Friday, May 4th.

LARYNGOLOGY (Hon. Secretaries—Cecil I. Graham, Frank A. Rose): at 4 P.M

Annual General Meeting.—Election of Officers and Council for Session 1917-1918.

Cases and Specimens:

Mr. Mark Hovell: (1) The Treatment of Irritative Coughing; (2) Retainers of Tracheotomy Tubes.

Mr. E. D. D. Davis: Two Cases of Optic Neuritis caused by Nasal Disease.

Mr. G. W. Dawson: (1) Naso pharyngeal Fibroma; (2) Adherent Palate; (3) Congenital Atresia Naris.

Dr. Watson-Williams: Recent Methods of Nasal Diagnosis illustrated.

Mr. W. M. Mollison: (1) Osteomyelitis of Frontal Bone; (2) Carcinoma Maxillæ after Operation.

Dr. Donelan: Specimen of Epithelioma removed from the Vocal Cord.

Mr. Tilley: Skiagram of Pituitary Fossa and Notes upon Removal of New Growth.

Dr. Dan McKenzie: Spasmodic Stricture of Thoracic Œsophagus; Skiagrams.

RÖNTGEN SOCIETY, at the Cancer Hospital (Free), Fulham-road, S.W.

TUESDAY.—8.15 P.M., General Meeting. Adjourned Discussion on the Future of the British X Ray Industry (continued by Capt. T. Holland (President)). Mr. A. S. Esslemont, Dr. J. Metcalfe, Mr. P. J. Neate, Mr. F. W. Higgins, Mr. W. R. Bullimore, Mr. A. E. Dean, Mr. B. H. Morphy, Mr. W. E. Schall, Mr. J. H. Webb, Mr. H. C. Head, and Dr. R. Knox will take part in the discussion.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—4.30 P.M., Paper:—Mr. J. C. Shenstone: Herb-Growing in the British Empire: its Past, Present, and Future.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY.—8.30 P.M., Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Oliver-Sharpey Lectures:—Dr. C Bolton: Observations on the Pathology of Cardiac Dropsy.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Museum Demonstrations (Pathology) for Medical Students and Practitioners and First-Aid and Ambulance Students:—

MONDAY.—5 P.M., Mr. S. G. Shattock: Gunshot Injuries.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Tetanus: its Prevention, Symptoms, and Treatment. (Lecture I.) 5 P.M., Annual Meeting.

ROYAL INSTITUTE OF PUBLIC HEALTH, Lecture Ha of the Institute, 37, Russell-square, W.C. 1.

Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—

WEDNESDAY.—4 P.M., Lecture III.:—Dr. C. W. Saleeby: Imperial Health and the Dysgenics of War. Followed by a discussion.

METEOROLOGICAL READINGS.

(*Taken daily at 9.30 a.m. by Steward's Instruments.*)

THE LANCET Office, April 25th, 1917.

Date.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Tem.	Wet Bulb.	Dry Bulb.	Remarks.
April 19	...	92	61	45	49	50	Overcast
,, 20	...	97	57	42	44	48	Fine
,, 21	...	73	53	47	48	50	Overcast
,, 22	...	81	52	38	44	49	Cloudy
,, 23	...	94	56	41	40	43	Cloudy
,, 24	...	91	60	36	39	42	Fine
,, 25	...	85	53	42	45	47	Overcast

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

The following journals, magazines, &c. have been received:—Albany Medical Annals, Revista Odontologica, Medical Review, Journal of the Royal Naval Medical Service, Public Health, Cleveland Medical Journal, Journal of Nervous and Mental Disease, American Journal of Orthopedic Surgery, British Journal of Dental Science, Surgery, Gynecology, and Obstetrics, Journal of Laryngology, Rhinology, and Otology, American Journal of Medical Sciences, Eugenics Review, American Journal of Roentgenology, American Journal of Public Health, Journal of Comparative Pathology and Therapeutics, Annales de l'Institut Pasteur, Tropical Diseases Bulletin, Canadian Journal of Medicine and Surgery, Midland Medical Journal, Calcutta Medical Journal, Medical Journal of South Africa, Bulletins et Mémoires de la Société Médicale des Hôpitaux, Proceedings of the Royal Society of Medicine, British Dental Journal, &c.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

We cannot undertake to return MSS. not used.

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